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EDITORIAL NOTES.

Society of British Gas Industries—Influence of Personal Contact.

THERE is an aspect of the life of the Society of British Gas Industries which is highly significant; and it is that their Presidential Chair brings leaders of industries in which the gas industry is interested into closer touch with its operations than they have ever been before. A knowledge of our accomplishments is thereby being diffused, through influential men, into the outer industrial world. In times past, the Society have, for instance, had as President Sir Robert Hadfield, whose position in the iron and steel industries is without compare; they have brought the chemical industry into closer touch with the gas industry through the presidency of Sir Alfred Mond; and during the past year through Viscount Ednam—their President until last Thursday—they have formed personal contact with the coal industry, and this has been accentuated by the acceptance of the presidency by His Grace the Duke of Sutherland. Furthermore, at the annual dinner, the Society had as their chief guest the Marquess of Londonderry, K.G., P.C. The gas industry long since began to make efforts—and successfully—to get out of its exclusiveness, and to let other industries know more about itself, and to gain knowledge of them. In this work, the Society have taken an imposing part. Their constitution and interests allow it; and the more the gas industry is brought into immediate contact with distinguished men in other industries, the better we shall be. The speeches at the dinner illustrate how closer intimacy spreads information, and creates new ideas and thoughts on matters which are of paramount importance to our industry in relation to fuel, and the production of heat, power, and raw materials for the chemical industry.

In the Presidential Address which Viscount Ednam delivered, he recognized the important influence that the work of the gas industry has had upon the trend of matters relating to the production and utilization of heat. Its thermal and productive efficiency has not yet been beaten. There has been, as he points out, a great awakening among the fuel producing and using public regarding the need for a careful revision of the standards forming the basis of fuel utilization and economy. This is seen in all directions; and the importance is acknowledged through the appointment by the Government of the National Fuel and Power Committee, through the establishment of an Institute of Fuel, and through the activities of the Fuel Section of the Society of Chemical Industry. The Fuel Research Station was instituted specially for this work. Our universities and other great educational centres are also devoting special consideration to it, and investigation is going forward in many quarters. All appear desirous to be associated with it, which is the manifestation of a belief in the fertility of the field and its possibilities. The gas industry must be in it all. The degree of its future prosperity depends very largely upon it. It matters little to the coal owners who are purchasers of their coal—whether industries or coal merchants; and they are themselves taking a greater interest in the question of their coal being utilized to yield the greatest possible benefit in the interests of the nation. Their own bye-product coking plants have made many revelations to them; and the lessons are not being ignored. The coal merchants appear to be the only people who are showing a certain amount of hostility to the course developments are taking in transferring coal from crude burning to scientific treatment, and using one or other of the products derived from it for domestic and industrial heating. Lord Ednam makes the remark that heat is the foundation upon which the coal, gas, and electricity industries are built, whether its ultimate purpose be for power production, or heat for the factory or domestic purpose. But it appears to him to be impossible that electricity can ever supplant gas to any material extent for such purposes as cooking and warming. Gas and coke are direct constituents of coal; electricity is the product of a product from coal. That is an important difference which tells very substantially against the economic position of electricity in relation to heat production. In other words, it can only be generated by the primary conversion of coal or coke into steam, or by the combustion of gas or oils derived from the former, except to the extent that it is generated from water power or from imported oil. Thus it is that the President feels certain that heat in the form of gas will always remain the more economical, and the more convenient for household purposes. His address shows he has taken a very broad view of these problems, at which there is such industrious working to-day, and the issues from which will have a big bearing upon the future of the fuel industries. It is his view, as it is ours (but not of our electrical friends), that the only rational basis for the sale of heat is the therm, the institution of which was in the gas industry. The ease of transporting gas, its labour-saving merit, its utilization efficiency, and its smokeless attribute, are also considerations which strike him as indicating much in favour of the gas industry. We are glad to have from such a competent observer, who is not directly identified with the gas industry, the results of his scrutiny of the prospects regarding fuel, and their bearing upon the interests of the industry.

In the address there is much more interesting topic. Lord Ednam is no believer in the idea that imported fuel oil is going to oust coal as a fuel. The first point against it is that its present cost per therm is about two-and-a-half times greater than the cost of a therm in coal; but, of course, it is not the cost of the therm in the two substances that is important. It is the overall cost per unit of (for example) the steam raised from the two fuels which is the comparable and determining aspect. But we already see that important shipowners are talking of reverting from oil to coal, unless the price of the former is considerably reduced. As coal goes down in price, the ratio of the cost per therm is increased; and as imported fuel oil tends to become exhausted, that also will be a factor which will have a large influence upon the cost ratio. While Viscount Ednam admits certain advantages of fuel oil over coal—such as the thermal capacity per unit volume being higher, ease of transportation and handling, and greater flexibility of control—he prophesies that coal will again take the place of oil in all forms of large power plants now using it. That is a bold prediction. The reversion, if oil comes down in price, may not take place immediately; but, in time a distance away, it may come, just as those who look deep into the future see that the time will arrive when this country will have to

be more and more dependent upon oil supplies from coal. However, his considerations led the President to touch upon low-temperature carbonization and the hydrogenation of coal. We have to make provision for oil for this country; and the question is, How is it to be done? It is known that Lord Ednam has taken a great deal of interest in low-temperature carbonization; but he fears it has some distance to go before the process can be taken up commercially. It is obvious, having regard to the profitable disposal of the gas, and the vacillating values of secondary products, that the low-temperature process contains several speculative elements, and they become more speculative with time. However, the gas industry will, as Sir David Milne-Watson stated at the dinner, give the process a good chance by erecting and working a large-scale plant at one station of the Gas Light and Coke Company, where it will be operated with a view to ensuring the utmost from it. Regarding hydrogenation of coal, recent experimental work on a few British coals does not convince the President that there is much chance of the system giving a yield of oil which will confer upon it the right to be known as a cheap process. He finds it cheaper to make fuel oil synthetically than to hydrogenate coal. Greater possibilities, however, in his view, lie in the partial or complete gasification of coal. There is no question that, from the investigations that are being made into the problems of coal utilization, and the application of its products, there will be a great revolution of views regarding power and heat, and that before many years are over.

We are pleased to see, in the section of the address in which Lord Ednam deals with the coal industry, that it is his belief that it will tend more and more to the sale of heat units, and the consequent elimination of inert material in the form of dirt. The gas industry will be delighted indeed to witness greater movement in the latter direction. It is considered by the President that at least 30 p.ct. of the dirt content in coal can and ought to be removed before the coal leaves the colliery, but he places upon the consumer the duty of demanding clean coal, seeing that it is to his economic advantage, and therefore he should compensate the collieries for the cleansing. It may be pointed out to the President that when a consumer asks for coal, he has a right to expect honest stuff, and not that a large percentage of it should consist of stone and dirt, for which he has to pay the price of coal, though we quite agree that it would be better to pay for cleaning than for useless stones and dirt. Regarding the purchase of coal on a heat unit basis, it should not be overlooked by Lord Ednam that it is not always the coal which can claim the highest calorific value per pound which is the most suitable for gas-making purposes.

The full address and the speeches at the dinner are all worth reading. They constitute a review of the movements of the times, and of a growing belief that our domestic affairs are on the high road to greater stabilization, and that the gas industry may, with other industries, look forward to a period of peace and prosperity. One thing which it is not difficult to extract from the many expressed views is that the gas industry must play its cards with close watchfulness and discretion.

Forthcoming Gas Legislation.

AT the dinner of the Society of British Industries last Thursday, the President of the National Gas Council (Sir David Milne-Watson) stated that he hopes the new legislation to help the gas industry will be introduced into Parliament next session. The nature of the proposed legislation has been touched upon on several occasions in the columns of the "JOURNAL;" and in our issue for Oct. 6, 1926 (p. 25), the draft memorandum on the subject was published as prepared by the Central Executive Board of the Council. Sir David pointed out that the industry is now 115 years old; and it is thought that by this time it ought to be allowed more freedom than it has had in the past. He made it plain that the industry does not wish to be entirely free from control; but it does want a fair amount of liberty to develop its business on its own lines. This statement will be thoroughly endorsed throughout the industry.

A National Industry, Based on National Service.

BUXTON is famed the world over. It is go-ahead in all its activities; but no town can be go-ahead without the directive work of men. It was the good fortune of those attending the Conference of the British Commercial Gas Association at Buxton to meet some of the representative men of the town, who did so much to make a great success of the visit. There was regret (as the report in our last issue showed) that the Chairman of the Corporation Gas Committee (Alderman A. W. Wall) could not be present; but the Mayor (Councillor William Goodwin) and the Vice-Chairman of the Gas Committee (Councillor A. J. Potter), with the Gas Engineer (Mr. F. G. Shaw) and his staff, added well to the felicity of the proceedings, and some of them to the stimulating speeches made on the occasion. In what the gas industry knows as the Manchester area of the country, are men who have been bred and trained in industry and commerce, and know well their needs. It is not, therefore, surprising that the progressive spirits of the gas industry in that quarter of the country should have been among the first to appreciate the value of the "B.C.G.A.," whose very existence is due to the fact that the industry realized that a central organization could do many things in respect of its trading interests which had previously been left undone, owing to the incapacity of gas undertakings as units to operate in a similarly effective and comprehensive way. As the Chairman of the Executive Committee of the Association (Mr. F. W. Goodenough) says, it is due largely to the encouragement and support from the Manchester area that the new organization met with such early success as an effectively operative national organization; and it must not be forgotten that it stands, spends, and works for the whole gas industry in very many ways.

To our mind, it is important that the national idea of such an organization should be fostered and spread as much as possible. It will help to the realization of the desire that people should feel that the gas industry itself is a great national institution, and is not merely something constituted of a number of trading units, each of which is an entity without any identity with the rest. Our parliamentary enactments and our central organizations all show the national character of the system of gas supply; and the same idea, it is essential, as Mr. Goodenough truly points out, should be developed among the public. The national idea is the trend of things not only in our own industry, but in others; and it gives in the eyes of the people an importance and influence to an industry which cannot be gained in any other way. We have seen, for example, how greatly electricity supply has been elevated to something more than a collection of units of suppliers by the prominence given by the Government and the Press to the affairs of that industry during the past two or three years. We do not want the gas industry to be subject to the conditions which have been imposed upon the electricity industry. But we do wish that it should be regarded by the whole community as having a distinctive and inseparable place in our national system; and this idea we can only cultivate by the exertions of the industry itself. In this work the "B.C.G.A." take a very prominent part, while our other organizations are active in the defence and advance of the interests of the industry, and for the progress of its technical work. We have tried to emphasize before, and do so again, that the "B.C.G.A." operate in those places where the industry comes into immediate contact with the public; and, therefore, the activities of the organization from the national point of view, and the spread of the elevating national idea, are highly essential, as well as being vital to the bringing about of that development of business upon which progress of the contributory operations of the industry so much depends. To make proper contact with the public is a science. Our competitors are realizing this. They have come to the conclusion that even the electricity generating scheme promoted and fostered by the Government cannot be a success unless intensive work is carried on among the community. Development at the producing end can be of little avail, if there is not expansion of business among the population. We cannot, in the face of what is being done by our competitors, sit still with benign coun-

tenances, and see the electrical industry advance in recognition while the gas industry remains stationary. We have to spend and work, and, in our opinion, there has never been a time in the history of our industry when activity has been demanded with greater insistence. Similar points were made by Mr. Goodenough in his opening address at the Buxton Conference; and we are pleased to corroborate what he had to say, and to accentuate it by these reflections.

While it is necessary to get the national idea of the gas industry spread among the community, it is equally essential to develop the service idea among the administrators of the industry. Here, again, the Association have done, and are doing, good work. The progress of the service idea among those who direct gas undertakings must result in the cultivation of the national idea throughout the country. The conference was a remarkably instructive one in this respect. All the papers and the discussions impressed the view that the right way of doing things in our commercial work produces the greatest results. No greater national service can be rendered by the industry than to work for the suppression of the combustion of crude coal by the utilization, in its stead, of smokeless fuels. Mr. Shaw, in his paper, pointed out that calculation shows that in Buxton the consumption of coal has decreased in the past five years by 2750 tons; and the figures he presented enable the computation to be made that in twenty years the increase in the consumption of gas in the town has been 66·5 p.ct. He and his staff have been doing excellent work in central low-temperature heating by coke-fired boilers, generally supplemented by gas-fires. The gas undertaking has also a system of free inspection, and, within limits, free maintenance; and Mr. Shaw is satisfied that the reduction of complaints by consumers meets the greater part of the cost. Good reasons were given by Mr. Frank H. Robinson why the policy of linking-up outer areas should be developed as much as possible by the gas industry, thus eliminating inefficient gas-supply undertakings, and giving a better gas service in areas in which are often found the private residences of men who carry on business and trading in the cities and larger towns. This is a modern and growing development; it demands careful consideration. Harrogate supplies good examples of the effects of linking-up areas bordering on the main supply district. Confirmation was given by Mr. Ralph Halkett in the discussion. It is found at Sheffield that, if the public in the outer areas have a good gas service, they will respond with increased consumption. Testimony as to the value of a Service Department came from Mr. H. Davies, who showed how, by developing the service idea in Chesterfield, through the institution of such a Department in premises which have only been in use since July 22, 1925, much new business has been obtained. The value of apparatus disposed of to March 31 this year, since the opening of the premises, has been no less than £19,722; and during this period the undertaking has added in entirely new business 1704 cookers, 1436 fires, 1016 washing coppers, 66 radiators, geysers, &c. Incidentally, Mr. Davies raised the question of differential prices for lighting and cooking and heating, which call for the use of two meters. He finds that a great saving is effected—and without any disadvantage, but much advantage, to the Department—by charging through one meter the first 3000 c.ft. consumed per quarter at the lighting rate, and the remainder at a lower heating rate. This does away with the rental charge for a second meter, in addition to reducing installation and maintenance costs; it also makes an indirect concession to the larger lighting consumers, and provides a stimulus for the heating and cooking load. The prepayment meter consumers derive the advantage of discounts, which serve, on the one hand, as a savings bank for the charges for apparatus on hire, or permit of a substantial sum being handed back to the consumers on the occasion of the visits of the collector. Strong advocacy was made by Mr. H. E. Bloor, in a paper dealing with local publicity, for the highest possible standards being adopted in respect of showrooms, publicity, and general conduct, as there is no question that these make the most effective impression. Mr. Bloor's opinion is—and it is shared by many in the industry—that a gas undertaking should raise its methods much above those of a local tradesman, in order to cultivate the idea of public service and public utility. With all this there is full agreement, as there is with the view of Dr. R. Veitch Clark, the Medical Officer of Health to the Manchester Corporation, that the conservation of our national coal resources is only one side of the big problem upon which the gas industry is engaged; the other side is that its operations in this direction must lead to the conservation of the health, energy, and efficiency of our population.

The gas industry can with safety claim that it is a national servant. The recognition of this is one of the objects for which the "B.C.G.A." are working; and in it they desire the full and earnest support of all gas administrators.

Price of Gas Oil.

DESPITE protests from the gas industry, and the large quantity of gas oil which is known to be in stock in this country, the market quotation for it continues to be reported "unchanged." Mr. Frank Livesey raised, in our "Correspondence" columns for April 6, the question of current prices being unjustifiable, and urged that the industry should decline to enter into new contracts while they continued. The following week Mr. J. F. Tyndall supplemented Mr. Livesey's protest; and an article appeared in our editorial columns for April 20 which showed that there was no reason whatever why sellers of gas oil should adhere to the present high charges. The result of their doing so is that they are cutting their own throats, by causing gas undertakings to utilize carburetted water gas to the bare minimum of requirements, and so to order the operation of their gas plants as to satisfy their needs in a cheaper way. Mr. A. M. Paddon, Chairman of the Brighton and Hove Gas Company, in a letter in the current issue, puts the matter in a nutshell when he says: "At the current price of oil, the cost of a therm pro-"duced by the carburetted water-gas process is from 50 "to 100 p.ct. more than that derived from coal-gas manu-"facture, and the former method is economically dis-"paraged." It cannot be said that Mr. Paddon is in any way hostile to the use of carburetted water gas. He has advocated it for the last four decades; and therefore he would be the last to under-estimate its co-operative and economic value. But, as he says, it is placed at such a serious disability through exorbitant price as to induce its restricted use as nearly as may be practicable to that of blue gas, with a consequent cessation of, or a reduction in, the use of oil, until more favourable conditions obtain. Those who control the gas oil market in this country would, in our opinion, be serving their own interests well by not allowing these repeated protests from the gas industry to pass unheeded. Published remonstrance is only an indication of what is felt throughout the industry. The practices advocated for reducing the proportion of carburetted water gas made are being universally applied, and the reduction of the demand for gas to summer limits is facilitating this.

Institution Annual Report.

THE annual report of the Council of the Institution of Gas Engineers is a review that reflects the many topics of a technical character which engage the attention of the industry at the present time. The fuel problems of the day claim very prominent consideration. For example, it is mentioned that an invitation was received from the National Fuel and Power Committee of the Board of Trade to assist in the preparation of evidence regarding the technical aspects of the fuel question as they affect the gas industry; and, as a result of the appointment of a Committee, Prof. Cobb and Mr. T. Hardie were entrusted with the drafting of the necessary evidence, which, having been duly approved, was presented. The evidence required was of a character which involves new legislative measures; and therefore in connection with it the co-operation of the National Gas Council was obtained. It will also be remarked that the interest which is being taken in such problems is not confined to this country, but is really world-wide. This was well illustrated by the International Conference on Bituminous Coal, which was held

at Pittsburgh, and for which Mr. G. M. Gill was appointed to represent the Institution. In the report which he made on the conference, he mentioned that there were present many scientists of world renown. As a matter of fact, no less than 1700 people attended; and the enthusiasm and keen interest that was taken in the proceedings are attested by the fact that, at times, there must have been at least 1200 people in the hall. When this is considered, and that the representation included all grades of technical men and women who are interested in the development of coal, its bye-products, gas oil, and fuels generally, one gets impressed by the fact that each industry must do its own good part in keeping up its end, and in ensuring the progress of its interests. The more this is done, the better for the world at large. Furthermore, there is a reference in the report to the Institute of Fuel, which is an amalgamation of the Institution of Fuel Technology and the Institution of Fuel Economy Engineers. As the Institution of Gas Engineers participated in the formation of the first-named body, naturally they are concerned in the Institute of Fuel, whose special functions will be to work for the advance of the economical and efficient utilization of fuels for all purposes in the country.

Regarding other matters, it is seen that the Committee which the Institution appointed, at the request of the National Gas Council, to consider suggestions referring to an alteration of the section of the Gas Regulation Act which provides for the testing of gas when saturated with moisture, have reported, and their recommendations have been forwarded to the National Gas Council. This is a subject which has recently been considered in the columns of the "JOURNAL," following a letter by Mr. Hardie drawing official attention to it. The comment on the matter in the report of the Council is: "It has been pointed out "that, in the near future, undertakings may desire to "supply gas free from moisture, so as to reduce troubles "in the mains and services from water deposition. Under "the present conditions of testing for calorific value, "there would be a loss to the undertakings of approxi-"mately 1·25 p.ct. of the volume measured on the con-"sumers' meters if moisture free gas is supplied." Naturally, the report makes reference to the work of the year by the Gas Investigation Committee, by the Benzole Research Committee, and by the Committee dealing with effluents from gas-works, and also to the investigations of the Institution Fellowship. Allusion is also made to the Refractory Materials Committee, and to the Wrought-Iron Tubing Committee, who, by the way, have completed the preparation of a specification for (1) Wrought-Iron Gas, Water, and Steam Tube Strip; and (2) Wrought-Iron Gas, Water, and Steam Qualities Tubes and Fittings. We published the specification in the "JOURNAL" for Feb. 16 (p. 395). The Council are now preparing a list of approved British firms who have agreed to produce genuine wrought-iron strip of British manufacture conforming with the specification. This has been a very useful work; and the Committee have been asked to continue for the purpose of investigating the problems connected with the corrosion of tubes. Further examination of the report shows that a considerable amount of work has been done in collaboration with other engineering and scientific bodies; but, with one or two exceptions, we need not here specially refer to the various ramifications of the Institution's activities. There is a particularly new feature, and it is that a Committee has been appointed to consider with Sir Henry Gauvain, M.D., M.Ch., Medical Superintendent of the Lord Mayor Treloar Cripples Hospital and College, Alton, certain problems relating to the qualities of radiation that are obtainable from different sources, including gas. It is also satisfactory to note that the Institution are participating in the joint opposition of engineering societies to the Bill for the Registration of Engineers, which has been promoted by the Society of Technical Engineers.

One other matter—the Education Scheme receives attention in the report, and the references will be considered highly satisfactory. The scheme is steadily forging ahead; and, as the report states, it is "finding its place in the life and development of the industry." While it is admitted that the progress has not been so great as could have been wished, and many expected, it has been greater than is generally realized. So viewed, it is not unsatisfactory; but, contrasted with the needs of the industry, it is still inadequate. It will be noted with interest that this year 211 candidates have entered for the examinations, which represents an increase of 30 p.ct. on 1926, which itself had an increase of 50 p.ct. on 1925. Therefore, in two years the numbers have practically doubled. An allusion is made to the difficulties which were bound to arise in a new scheme of this kind; but it is pointed out that certain of these are inherent in the special circumstances of the industry, but others fortunately can be overcome. These have been fully considered by the Committee, and proposals for the modification of the regulations in certain particulars are to be laid before the Institution at the annual meeting, together with a full report on the subject. The criticism which has been made of various aspects of the scheme is evidence of the greater interest that is being taken in it, and of a desire to make it as effective as possible. It is certain that the younger men of the industry, who at first appeared rather indifferent to the scheme as a whole, have changed their attitude, and now see its value, and what it means to them in their future careers. What is wanted now is that there shall be equal appreciation on the part of the administrators of the industry, in order that increased facilities may be provided for the attendance of students at the classes. There will be ample opportunity for further enlightenment, if required, after the presentation of the report of the Committee by the Chairman (Mr. F. W. Goodenough) at the forthcoming meeting.

British Commercial Gas Association.

Arrangements are well in hand for the Annual Conference of the British Commercial Gas Association, which is to be held at Southampton in the first week of October. From the early intimation we are able to make in later columns, it will be seen that the occasion will be one of great attraction. A novelty will be that the dinner, to which the Chairman and Directors of the Southampton Gas Light and Coke Company are generously inviting the visitors, will be held on board one of the cross-Atlantic liners on the evening preceding the opening of the conference, which will be held on the two succeeding days (Oct. 4 and 5).

Smoke Nuisance in Paris.

Our contemporary, the "Journal des Usines à Gaz" announces that growing prominence is being given to smoke abatement, and that the question has again been before a meeting of the Municipal Council of Paris. It was decided to make strong representations to the Administration des Postes et Télégraphes that they should conform with the Prefect's Order, and take steps to suppress the intolerable smoke nuisance for which the General Post Office is responsible. The Council further expressed the wish that the proper Department should bring pressure to bear to ensure that the Railway and the River Navigation Companies suppress the emission of smoke by locomotives and tugs within the Paris area.

Over-Production of Coal.

Colliery owners are complaining that they cannot dispose of all the coal they are raising. In consequence, stocks are increasing; and week after week one sees reports of certain collieries reducing the working time of their men. Fortunately this is not general; but it is indicative of a condition of things which is largely ascribable to the long stoppage last year. During that period in other countries large developments of output were made to satisfy the demands for coal for this country and for the supply of former consumers abroad of British coal. The condition is such to-day that France has found it necessary to do something to limit the importation of coal and coke. A message last Wednesday stated that a decree had been signed by the President of the Republic, which forbids the importation of foreign coal and coke in any form, except under licences granted by the Ministry of Finance and the Ministry of Public Works. It is expressly stated that the situation which has evoked this measure had its origin in the British coal strike, and the over-production on the Continent, which was one of its consequences. The further statement is made that at the present time coal imports exceed the require-

ments of the country by about 600,000 tons a month, and the accumulation of coal stocks in the Nord and Pas de Calais Department threatens to cause unemployment of miners.

Defective Electric Appliances.

The lesson of the death of Mrs. Violet Rainsford, of Wembley, who was electrocuted while listening-in, does not necessarily condemn the original installation of electricity in the house or the installation of her wireless set. But the lesson is that it is necessary for everyone who uses electricity to have periodically expert examination of their electric installations, in order to see that they are maintained in as safe order as ingenuity can devise. The facts are plain. Mrs. Rainsford was lying in bed listening-in, using headphones, and with a standard electric reading-lamp at her side. She was also wearing steel-rimmed spectacles. When discovered, she was found with one hand clasping the standard lamp, the headphones were "flashing," and round her eyes were burnt marks from the spectacle rims. The voltage of the current supplied to the house was 250 (alternating). We have no doubt the evidence of Mr. H. W. Gregory, the Resident Engineer of the North Metropolitan Power Company, who had examined the conditions, correctly describes what took place. The flexible conductors in the standard lamp had become defective. The flexibles of the headphones at the terminals had also become frayed; and there were the metal-rimmed spectacles. It was the current from the defective electric lamp which started the fatal mischief. The circuit of the current appears to Mr. Gregory to have been as follows: Live wires to the house supply, standard lamp circuit to the metal portion of the lamp, Mrs. Rainsford's hand, her spectacles, the metal portion of the headphones, wires to the wireless set, earth connection to the set. Medical evidence showed a weak heart had been in no way contributory to death. The daughter of the deceased stated that, when they started their residence at the house last October, they got slight shocks from an electric cooker, but this was corrected. Only a fortnight before the sad event, shocks were experienced from the electric lamp. Death by "Misadventure" was recorded.

Coal Output.

During the week ended April 30, the coal output returned to its old figures, following the lower production due to the Easter holidays. The quantity raised during the week was 5,500,100 tons; the number of persons employed being 1,028,700. In the week ended May 7, the output was 5,072,700 tons, with 1,030,200 workers.

PERSONAL.

The Grangemouth Town Council have appointed Mr. ARTHUR CUTHBERT, Assistant Gas Manager at Dumfries, to be Manager of Grangemouth Corporation Gas-Works. There were sixty applications for the position. Mr. Cuthbert, who is 37 years of age, was educated at Montrose Academy and at the Royal Technical College, Glasgow. His engineering apprenticeship was served at the Maryhill Engine Works (Messrs. Clarkson & Beckitt), Glasgow. There he received training in general engineering and drawing office experience. In 1913 he entered the service of the Glasgow Corporation at the Tradeston Works, where he gained knowledge of modern gas-works practice. A year later he enlisted with the 17th Highland Light Infantry, and on being demobilized resumed his duties at the Tradeston Works. Anxious to gain a more general experience of gas-works routine and management, he applied, in 1920, for the position of Assistant at the Dumfries Corporation Gas-Works. There he was responsible for the manufacture of sulphate of ammonia, the dehydration of tar, the repair and maintenance of all plant, the distribution of gas, and the management and control of the workmen. In short, he had practical experience in the running of a medium-sized works. Mr. Cuthbert will take up his new position in July.

OBITUARY.

We regret to announce the death, at a ripe age, of Mr. SIDNEY H. TONKS, who passed away on Wednesday, May 25. He will be remembered by many of our readers as being associated for over thirty years with the Torbay Paint Company, Ltd., of 26-28, Billiter Street, London, E.C. 3.

FORTHCOMING ENGAGEMENTS.

June 11.—NORTH OF ENGLAND GAS MANAGERS' ASSOCIATION (AUXILIARY SECTION).—Fifteenth half-yearly meeting in Newcastle at 2 o'clock.

June 11.—LONDON AND SOUTHERN DISTRICT JUNIOR GAS ASSOCIATION.—Visit to the Margate Works of the Isle of Thanet Gas Light and Coke Company.

June 15.—ASSOCIATION OF STATUTORY INSPECTORS OF GAS METERS.—Eighth annual general meeting in the New County Hall, Westminster Bridge, S.E. 1, at 10.30. Paper by Mr. E. C. Holt, of the Gas Light and Coke Company, entitled "Recent Improvements in Gas Meters."

July 12.—NATIONAL GAS COUNCIL.—Annual meeting at the Hotel Cecil, at 3.15.

Sept. 23.—SOUTHERN ASSOCIATION OF GAS ENGINEERS AND MANAGERS.—Visit to the Torquay Works of the Torquay and Paignton Gas Company.

INSTITUTION OF GAS ENGINEERS.

June 13.—Council meeting.

June 14-17.—Annual General Meeting in London.

ELECTRICITY SUPPLY MEMORANDA.

WE have a great admiration for Col. R. E. Crompton, and always listen to him with the deepest respect. He has a lively imagination. His latest exploit has been in the "Correspondence" columns of "The Times," through which he has attempted to make England believe that, by the aid of electricity, a perfect El Dorado is coming, if only we set to work in the right way. He has cast his eyes on the vast rural areas of the country which at present have no electricity supply, or are given one at rates so high that it cannot be used for farming and general power work. Given a cheap and abundant supply of power to our farms and villages, the gallant Colonel sees that the tendency of the workers to abandon the country for the cities will be reversed. Land will be cultivated at reduced costs; and village industries will be established, which will allow our rural workers to devote their time, when not engaged upon their main duty of growing food, and during the bad weather and long dark days of winter, to industries such as are established in the South of France and in Switzerland. The cows will give more milk; hens will lay a full supply of eggs during the winter months; and bees can be made to get and yield an increased supply of honey. In other words, the poor cows, hens, and bees are to be made to work overtime, and early reach a condition of exhaustion. The "S.P.C.A." should look into this matter of making farmyard stock, for the sake of electricity, exceed Nature's speed-limits of production. The soil, too, will gain increased fertility from nitrates obtained by electrical means from the atmosphere. That is nothing new. It is being done, and without the aid of the Government electrical scheme; and there appears to be, looking at market values, a present excess production of fertilizers in the world. Then, again, the farmer's vehicles will be charged with electricity during the night, so as to enable him to bring in his produce to the homestead, or to carry it to market. Col. Crompton urges that it should be the duty of the new Electricity Board to provide for these things being done as in Sweden. We have no water power here such as Sweden possesses; so that the Board must pursue their present method of developing the generation of energy. It is a beautiful picture; but the theory which constitutes its background is not altogether amenable to the practices which will yield the necessary cheap and abundant supply of energy for the rural areas.

El Dorado in Rural Areas.

The Director of Rural Industries Bureau (Mr. W. W. Blair-Fish), also writing in our morning contemporary, has put rather a cloud over the picture. The economic facts were under investigation long before Col. Crompton was swayed by the glorious future for rural England into sending his letter to "The Times." Rural conditions, instead of making electricity cheap and abundant, are more likely to contribute to making it dearer. A report on electric power in industry was presented to the Royal Agricultural Society in 1925 by Mr. Dampier Whetham, with whose conclusions (which are opposed to those of Col. Crompton) the Rural Industries Bureau are in entire agreement. A trip through rural England in any direction shows how scattered are the farms and villages. There are sometimes many miles of countryside through which the high-tension cables would have to be carried to supply a small and variable load—such as farms and tiny villages would

The Picture Spoilt.

require. The capital and transmission charges would not be negligible. Then on the hypothesis of an average price of 6d. per unit for light and power—power is not a constant load on a farm—Mr. Dampier Whetham is of opinion that no suppliers could rely upon a greater revenue from current than £150 to £160 per annum per square mile. The demand might be expected to increase slowly; but the returns would not advance proportionately, as a growth in demand would probably require the stimulus of a price reduction. A probable revenue of £160 per square mile per annum to cover maintenance and capital expenses per square mile for a costly system of high-tension cables and local transformers, coupled with the consideration of a very bad annual load factor inseparable from rural supply, makes the proposition impossible from the financial point of view.

The Smile and the Tiger.

The gas industry is the "Tiger;" the smile is supposed to be on its face. It is further imagined that it got there owing to the unlet all-electric houses in Liverpool. If there is a smile on the face of the so-called "tiger" over the position of the Liverpool Corporation in respect of some 150 of its all-electric houses, it should fade away after reading these ponderous words of the "Electrician:" "Great, indeed, will be the tribulation of the gas industry, when, on sober reflection, it analyzes the reasons why the Liverpool Corporation has a number of unlet all-electric houses." We suggest "the sober reflection" should come after the analysis of the reasons; and we are not sure, if plainly stated, they require analyzing. The reasons our contemporary advances are that those who are fortunate enough to become tenants of these houses must possess very definite qualifications; but the fact remains that those who do possess the necessary qualifications have not jumped at the houses. Up to a month or so ago, the qualifications were that a tenant had to be married, have a family of at least two children, and have resided (so our contemporary believes) in the city for at least five years. From what we know of Liverpool, it is not destitute of people possessing all those qualifications; but the "all-electric" magnet has not so far been sufficiently strong to draw them from their present habitations, which are not all-electric. We give the Corporation of Liverpool credit for being business men; and when they laid down the conditions for tenancy, they had good expectation that they would easily and readily be fulfilled. Those who drafted the conditions at any rate knew more about the city than the writer of "Current Topics" in the "Electrician." The Housing Committee have now to relax the conditions to fit the position of persons willing to take the houses. They should have no difficulty now in finding tenants, because the "Electrician" writer, with his superior knowledge of Liverpool, says there are "hundreds, if not thousands," of would-be tenants. The strange presentment of "reasons" which the gas industry is asked to analyze ends up with this remark: "It is needless to say that in Liverpool electrical circles, there is amusement at the smile on the face of the tiger, but—he who laughs last, laughs best." We have known users of electric cookers and fires who have not "laughed last." Other people have been left to do that.

Low-Temperature Heating.

From time to time, there is advocacy in our electrical contemporaries of low-temperature convection heating. An article on the subject, from the pen of "Hotspot," appeared in the "Electrical Times" for May 5. In passing to his main subject, he mentions that electricity can be utilized to give 80 p.ct. of radiant heat in the ordinary radiator, which is a "very real advantage in its favour compared with other heating agents, such as gas and coal fires." Regarding this, the only comment that need be made is that 80 p.ct. of the potential heat energy of 1 KW.-H. is 2730 B.Th.U. Modern gas-fires give approximately 50 p.ct. of radiant heat and 25 p.ct. convected—the products of combustion accounting for the balance of 25 p.ct. Taking the price of gas at 10d. per therm, a penny purchases 10,000 B.Th.U.; and 50 p.ct. of this (representing the value of the radiant heat) would mean that the room would receive in this form 5000 B.Th.U., as compared with 2730 from the unit of electricity. If to this we add 2500 B.Th.U. in the shape of convected heat, we get a total delivery of heat units to the room of 7500 for 1d. However, while in favour of radiant heating, "Hotspot" points out that convection heating systems have their place, particularly in offices and large buildings. For this purpose, we are not surprised to find that it is his opinion that "electricity offers advantages compared with other agents just as marked as in the case of radiant type heaters." To our mind, the most "marked" thing about the electric heating of rooms is the high cost in comparison with other agents. The electrical convector, he submits, has many advantages over other systems, in that it is much cheaper to instal, can be placed in any position when flexible connections are provided, and alterations and additions can be effected with the greatest facility. He points out that the City of London Electric Lighting Company, Ltd., some months ago introduced a special tariff designed to encourage electric heating by low-temperature convectors; and the policy has met with considerable success—a score or more installations having been connected. The inducement offered to users of these convectors, the loading of which does not on the average exceed 700 watts per 1000 c.ft. of room space, is a tariff of 1d. per unit between the hours of 9 a.m. and 7 p.m., and ½d. per unit between 7 p.m. and 9 a.m.—*i.e.*, during the night and off-peak load periods. The ordinary heating rate is 1½d. per unit. It is stated that experience shows that an average loading of 500 watts per 1000 c.ft. of room space is entirely adequate for normal situations; where the proportion of window space, exposed walls, &c., is large, 600 to 700 watts per 1000 c.ft. would be provided to ensure the installation being up to requirements. Data are given relating to some of the low-temperature installations in the City. In the case of one installation, from Jan. 10 to March 17 the day account came to 1286 units, costing £5 7s. 2d.; the night account to 5428 units, costing £11 6s. 2d. Thus, in that period, the total payments by the consumer came to £16 13s. 4d., which averages 0·6d. per unit. Take another case—between Jan. 4 and March 17 the day account amounted to 6335 units, costing £26 7s. 11d., while the night account was 2780 units, costing £5 15s. 10d.; the total being £32 3s. 9d.—averaging 0·8d. per unit. There are smaller examples; but these two may be taken as representative of fairly substantial users of low-temperature convector installations—not "convertor" as given at the top of the table in our contemporary.

Assisted Wiring.

A report dealing with the progress of the assisted wiring scheme at South Shields has been published. During last quarter, 844 additional consumers were connected; 378,664 units were sold; and the revenue was £10,281. In the year ended March 31, 4595 meters were installed; the sale of units was 815,576; and a revenue of £22,180 was obtained. Since the inception of the scheme, 11,700 meters have been fixed, 1,015,863 units have been sold, and the revenue has been £27,679. Regarding the financial aspect of the scheme, 2d. per unit extra was added to the ordinary flat-rate of 4½d. per unit; so that the capital cost of the installations and meters, together with interest, might be recovered over a period of ten years. Taking the interest and sinking fund charges on the total amount expended on installations and meters up to March 31, it is found that, in order to redeem the capital and pay the interest over a period of ten years, the average consumption per annum should be 128 units. Respecting the interest and sinking fund charges on the capital expended on mains, extensions, and services, it is found that, based on the consumption for the twelve months ended March 31, the sum of 1·75d. per unit sold is required. Adding works costs, rents, rates, taxes, and management expenses, the total cost per unit sold is approximately 3·5d., which gives a surplus of 1d. per unit sold.

EVENING STAR LODGE, No. 1719.

The Evening Star Lodge, No. 1719, held its second regular meeting of the year on Wednesday last, at Freemasons' Hall, Great Queen Street, London; the chair being occupied by W.Bro. Frederick G. Cockey, with W.Bro. Arthur L. Croager as S.W., and W.Bro. James W. Foreman as J.W.

After the usual preliminary business, Bro. John A. Brentnall was invested as S.D. of the Lodge, and Bro. John F. Simmance as Organist, for the year 1927-28.

The W.M. conducted the ceremony of advancing a degree Bro. J. Howard Goldsmith and Bro. L. R. Fender, both of whom had been initiated at a previous meeting.

Approved by ballot as candidates for initiation, Mr. Harold Temple Abady, Director of Messrs. Alexander Wright & Co., Ltd., and Mr. Robert Grant, Secretary to the Primitiva Gas Company of Buenos Aires, Ltd., were regularly initiated by the W.M.; Bro. Albert B. Potterton officiating as J.D. W.Bro. Jacques Abady, P.M., L.R., also assisted in the ceremony.

Reference was made from the chair to the arrangements which were in hand for the celebration of the Jubilee of the Lodge at a meeting on Friday, Oct. 14 next. It was to take the place of the regular meeting of the Lodge that month. Announcement was also made that the Standing Committee had decided that this year there would be no emergency meeting held in June in connection with the annual meeting of the Institution of Gas Engineers.

The Lodge having been duly closed, the members and visiting brethren dined together in the Connaught Rooms, W.Bro. Frederick G. Cockey presiding. The traditional masonic toasts were proposed and honoured during the course of the evening; and they were interspersed with some excellent vocal and instrumental selections. W.Bro. William A. Surridge, P.G.St.B., a Past Master of the Lodge, in responding to the toast of "The Grand Officers," gave some interesting particulars of matters which had recently come before Grand Lodge. The toast of "The Visitors" was given by W.Bro. A. E. Broadberry, P.M., L.R., and was acknowledged by W.Bro. Sayers, of the Northern Star Lodge; W.Bro. Milbourne, of the Murdoch Lodge; W.Bro. Harrison, of the Phœnix Lodge; and Bro. Howell, of St. Albans Lodge, No. 29.

NATIONAL GAS COUNCIL—SCOTTISH DISTRICT.

The Annual Meeting was held in the City Chambers, Glasgow, on May 26, and was presided over by Mr. W. E. WHYTE (Lanarkshire).

ANNUAL REPORT.

Membership.—Company, 72 (last year 72). Corporation, 44 (last year 45).

Gas Regulation Act, 1920—Therm Method of Charge.—In Scotland the number of Orders granted under section 1 of the Gas Regulation Act up to Dec. 31, 1926, was 33 (corporations 29, and companies 4). This number is only one more (corporation) than the previous year, showing that the adoption of the Act has not extended in Scotland.

Scheme for Sale of Tar and Ammoniacal Liquor to Distillers.—The scheme continues in successful operation. The monthly awards by the Arbiter are as follows:

	Tar.	Liquor (4° Tw.).
	Per 100 Gallons.	Per 100 Gallons.
	s. d.	s. d.
1926—April	31 4½	1 6·75
May	31 4½	1 6·75
June	32 8½	1 6·75
July	34 10	1 6·75
August	36 11½	1 6·75
September	41 11½	1 6·75
October	52 0½	1 6·75
November	59 2½	1 6·75
December	53 4½	1 6·75
1927—January	50 5½	1 6·75
February	46 1	1 6·75
March	42 8½	1 6·75
Average for 1926-27	42 9·08	1 6·75
,, ,, 1925-26	23 10	1 9
,, ,, 1924-25	23 0	2 9·1
,, ,, 1923-24	49 7	3 6·5

Rating (Scotland) Act, 1926.—Strong efforts were made, and the necessary steps taken, through meetings with officials of the Scottish Board of Health, and the Committee in London of Representatives of Public Utility Associations on Rating and Valuation, to secure in the first schedule of the Act deductions from gross annual value of gas undertakings the same as proposed to other public utility undertakings. The deduction to gas undertakings of 20 p.ct. compares with 30 p.ct. to electricity undertakings. Efforts were also made to get amendments in order to obtain (1) a revision of the rates of deduction at any time after five years from the passing of the Act and (2) an increased rate of deduction for gas undertakings situated in mineral areas. Two amendments were drafted, and were subject of debate in the House of Commons sitting in Committee; but both failed to find acceptance, and were dropped. The explanation given by those in charge of the carrying through of the Act was definitely stated to be that the rates of deduction specified in the Act were not intended to alter the amount of assessment payment to local authorities concerned from what had hitherto obtained, and was simply to equate the position of the various lands and heritages for the purpose of rates.

Public Utility Undertakings in Scotland—Proposed New Valuation Bill for Scotland.—In view of the probability of a Bill being drafted at some early date, a preliminary meeting of representatives of electricity, gas, and water undertakings was held in the City Chambers, Glasgow, on Thursday, Feb. 24, and was attended by 14 representatives, including Mr. Ross Taylor, representing the Secretary of the Conjoint Conference of Public Utility Associations. The meeting considered:

(1) What steps should be taken with a view to securing as soon as possible new legislation modifying the existing law regarding the valuation of public utility undertakings in Scotland.

(2) Whether or not the public utilities above mentioned are in a position to make proposals to the Scottish Office in regard to such legislation; and, if so,

(3) What proposals should be made.

The meeting considered the position, and reviewed the existing practice, along with decided cases; and it was felt that the revenue principle had been consecrated by long usage and by a series of decisions of the Court of Session, and that it would be extremely difficult to introduce a new principle. It was suggested that, while the profits principle was right, its application was wrong, and that a Central Valuation Board on the lines of that suggested under the first English Rating and Valuation Bill would be an excellent means of securing a measure of uniformity. The Assessors in Scotland regarded themselves as being bound by the decided cases; and therefore no substantial change could be effected without legislation. The meeting appointed a Committee for the purpose of ascertaining and defining exactly what deductions are now being given, and what additional deductions should be asked; the Committee to report what action they considered should be taken with a view to promoting legislation. It has long been felt that a certain inequity and injustice result from the existing method of valuing municipal and company undertakings, like water, gas, and electricity works, when comparison is made with other industrial businesses having comparable capital and revenue accounts.

Amalgamation of Gas Undertakings and Combining of Gas Supplies.—The subject of strengthening the position of the gas supply industry throughout the country has been receiving the close attention of the National Gas Council. The placing on the Statute Book of the Electricity (Supply) Bill will emphasize the necessity of gas undertakings taking immediate steps to meet competition by increasing their efficiency, and by reducing the price of gas to the public. In many cases this would appear to be possible only by undertakings entering into schemes of amalgamation, supply of gas in bulk, and joint working. The difficulty of devising a method for approaching this matter is fully appreciated; but it is felt that the question is of such paramount importance that every effort should be made to cope with it. It is suggested that a Committee might be appointed for the purpose of surveying the country as a whole, and of preparing a scheme, or schemes, for voluntary amalgamations or joint working between neighbouring undertakings.

While much remains to be done in the centralization of gas supply in Scotland—particularly as regards the smaller undertakings where geographical situation presents difficulties—it is undoubtedly the case that the last few years have seen carried out several important schemes embracing large areas where one gas-works only provides a central supply for a number of towns and villages, thus doing away with small gas manufacturing works. There are also a number of instances of provincial gas-works extending their gas supply to small townships and into areas of scattered population hitherto not supplied with gas. At the present time there are under contemplation throughout the country quite a number of extensions of gas supply into fresh districts, and also cases where bulk supply is being considered.

Proposed New Gas Legislation.—Proposals have been put forward by the National Gas Council to the Board of Trade, and the Board have replied with a memorandum setting forth their views and proposals. The proposals affect all gas undertakings—municipal and company, statutory and also private gas companies. A Special Committee appointed by the Central Executive Board of the National Gas Council is dealing with the subject. For statutory and non-statutory undertakings, two representatives from each have been appointed to represent Scotland. The amendments to present gas legislation include reference to (*a*) municipal gas undertakings in Scotland, and the effect of the Electric Lighting (Scotland) Act, 1890, whereby power at present is given to town councils to take profits from gas-works to meet losses in working of municipally owned electricity works; and (*b*) the Local Government (Scotland) Act, 1894, to enable District Committees of County Councils to adopt the Burghs Gas Supply (Scotland) Acts.

Scottish Education Scheme.—The scheme for Scotland under the Institution of Gas Engineers has now reached completion. It is satisfactory that the Technical Education Scheme for students prepared to enter the gas industry has now been placed on a permanent basis. The gas industry in Scotland is placed in a similar position to other industries in now supporting with adequate financial grant their own particular Educational Department. The amount contributed from gas undertakings to date, on the basis of 3d. per million c.ft. made annually, is £247; and this sum it is expected will be substantially increased.

Retirement of Chairman and Vice-Chairman.—The Committee regret the retirement of Councillor Stewart (Edinburgh) as Chairman, and Bailie Slorach (Hamilton) as Vice-Chairman, arising out of their non-election as town councillors at the last municipal election. Both gentlemen have rendered valuable service; and their practical interest and influence in gas affairs have been highly appreciated.

General.—During the past year many important matters—particularly the safeguarding of interests affecting the gas industry, and therefore of value to each individual undertaking—have been dealt with by the Central Executive Board in London, and are referred to in the monthly reports issued to all members. The Committee have received by correspondence throughout the year inquiries for information on a variety of subjects. Members desiring information on any matter are invited to communicate with the Secretary.

The following appointments were made for 1927-28:

MANAGEMENT COMMITTEE.

Chairman.—Mr. W. E. Whyte (Lanarkshire).

Vice-Chairman.—Mr. George Keillor (Greenock).

Members.—Messrs. James Campbell (Dunfermline), J. W. McLusky (Glasgow), James Dickson (Dundee), John M. Smith (Stirling), T. W. Harper (Ayr), Bailie Stewart (Perth), L. Hislop (Cowdenbeath), John Wilson (Motherwell), John Lang (Alexandria), Councillor Harvey (Edinburgh), Samuel Milne (Aberdeen), George Braidwood (Coatbridge).

Secretary.—Mr. J. W. Napier (Alloa).

TANKLESS GASHOLDERS.

The Question of Suitable Sealing Fluids.

The Management of the Stuttgart Municipal Gas-Works send us a copy of a communication, which was published in "Das Gas- und Wasserfach" for May 7, in which they point out their reasons for favouring the use of bituminous matter dissolved in oil, as for instance "Imunol," for the sealing troughs of tankless holders.

In a covering letter to ourselves, they point out that they were unable to be present at the M.A.N. conference in January of this year, which we reported in our issue for April 6, p. 27. They gathered, however, from Dr. Bunte's report that the only contributions to the discussion dealing with sealing fluids came from the M.A.N. people themselves. A translation of the communication is as follows:

We have read with interest Dr. Bunte's report of the conference. Among other matters, the question of the suitability of "Imunol" for sealing and lubrication was discussed, and Herr Jagschitz (of the M.A.N.) expressed a fear that it would give rise, in cold weather, to the formation of ice at the bottom of the sealing trough, instead of on the surface. He also was of opinion that the completeness of the separation of water from "Imunol," which had been claimed as an advantage, would really constitute a danger, since ice which separates out from tar is of a brittle nature, while that from "Imunol" assumes a much harder, and so more dangerous, form. This latter contention contains, however, a contradiction, for the readiness with which water separates from "Imunol" provides the very means for preventing any water at all from reaching the sealing cup. Complete separation can be effected in the storage tanks below, before the fluid is pumped to the sealing cups at all.

We ourselves have pointed this view out to the M.A.N. in the course of correspondence, and it was the subject of a detailed communication to them on Jan. 4 last, when we knew we should be unable personally to attend the Mainz conference. The omission of any mention of this letter in Dr. Bunte's report leads us to suppose that the M.A.N. did not refer to it at the meeting; but we consider the subject-matter to be of sufficient interest to merit publicity. We wrote as follows:

"As we shall not be able to attend the forthcoming conference at Mainz, at which we understand you will be raising the question of 'Imunol,' we consider a further reply is necessary to your last letter, especially as we cannot agree with your expressed opinions. As chief of your objections to 'Imunol,' you assume that water would be pumped with it to the sealing trough, where separation according to specific gravities would cause the water to go to the bottom, and the 'Imunol' to remain on top. You further assume that more and more water would accumulate in the trough, and, since it would be underneath the 'Imunol,' it could not be removed. There is, however, nothing to support your contention, since the canvas of the sealing trough is at least as permeable by water as by 'Imunol,' so that, should any water enter the trough with the 'Imunol' (a possibility which we consider is excluded if the holder be correctly proportioned and the overflow rightly situated) it would be the first to run off and flow back to the bottom trough, where it would be easily eliminated. At any rate the risk would be considerably less than that which we have often had the opportunity of observing—namely, the complete failure of the tar to separate from the water in cold weather, and the consequent formation of ice layers in the tar, which, of course, cannot penetrate the fabric. Your further contention that the fabric of the trough is liable to suffer damage from the water which separates out from 'Imunol' surely holds good far more with tar, which contains phenols, ammonia, and other injurious matter.

"We maintain that you should devote the greatest possible attention to the tar question, and the subject of sealing fluids in general, which, with the kindred question of the durability of the seal fabric, constitute the weakest points of your otherwise excellent system. You should spare no pains to test all possible sealing fluids, such as 'Imunol' or other similar mineral oil bitumen solutions, which might point the way to the elimination of past troubles."

In Stuttgart we have given most earnest consideration to the question of "Imunol" as sealing fluid for our tankless holder, but we have not yet been able to give it a practical trial, since gas supply conditions have not permitted of our putting the holder out of action even for the few days which would be required for thoroughly clearing out the old sealing fluid.

COAL AND BYE-PRODUCTS EXPORTS.

The April coal and coke export returns show a continued recovery to the quantitative conditions ruling in 1925 and 1926.

Coal Exports.

In April, the total quantity of coal shipped amounted to 4,117,515 tons, which compares with 4,290,652 tons in April, 1926, and 4,359,817 tons in April, 1925. The values were: April, 1927, £3,808,678; 1926, £3,767,909; 1925, £4,541,333. Of these quantities and values, gas coal in April represented 538,739 tons; in April, 1926, 576,276 tons; and in April, 1925, 565,247 tons. The values were: April, 1927, £455,755; 1926, £471,601; 1925, £554,131. The average value per ton of gas coal in April was 16s. 1d.

During the four months ended April, the total quantity of coal exported was 17,203,162 tons. In the corresponding period of 1926, the quantity was 17,481,236 tons, and in that of 1925, 17,462,134 tons. The values were: January-April, 1927, £16,541,955; 1926, £15,798,951; 1925, £18,345,059. The gas coal included in these figures amounted in the four months to 2,279,924 tons. In the corresponding four months of 1926, the quantity was 2,324,239 tons, and in the same period of 1925, 2,286,093 tons. The values of the gas coal during the four months were: 1927, £2,009,122; 1926, £1,895,983; 1925, £2,314,933.

Coke Shipments.

Regarding gas coke, the amount exported during April was 52,323 tons, which compares with 26,214 tons in April, 1926, and 25,599 tons in April, 1925. The values of these quantities were: April, 1927, £55,787; 1926, £26,555; 1925, £30,902. The average value per ton in April was £1 1s. 3·88d.

Taking the four months, the quantity exported amounted to 246,127 tons, as against 362,825 tons in the same period of 1926, and 183,777 tons in that of 1925. The value for the four months ended April, 1927, was £284,370; 1926, £374,518; 1925, £270,987.

Business abroad in metallurgical coke is still low. The amount in April was 36,309 tons; 1926, 56,200 tons; and 1925, 86,478 tons. The values were: April, 1927, £54,346; 1926, £65,596; 1925, £109,242.

In the four months, the shipments of metallurgical coke totalled 123,791 tons; in the corresponding period of 1926, 359,744 tons; and in that of 1925, 422,762 tons. The values were: In the four months ended April, 1927, £190,406; 1926, £408,169; 1925, £558,015.

Coal Tar Products.

There was a very small sale of benzole and toluole abroad during April. The amount was only 523 gallons, as compared with 21,027 gallons in April, 1926. So far this year, we have shipped 22,767 gallons, as against 417,853 gallons in the first four months of last year. Regarding naphtha, the business is still extremely low, only amounting to 1734 gallons in April, as compared with 4113 gallons in April, 1926. In the first four months of the year, the total is merely 11,104 gallons, against 45,722 gallons in the corresponding period of 1926. Regarding tar, oil, creosote, &c., April saw a considerable spurt in shipments; the total being 8,470,676 gallons, as compared with 2,193,600 gallons in the same period of 1926. But so far this year in these items we are down in exports; the total being 14,123,363 gallons, as compared with 15,798,260 gallons in the first four months of last year.

Sulphate of Ammonia.

The figures in the returns for sulphate of ammonia continue to be of a very unsatisfactory order. The total quantity exported was 13,014 tons, as against 15,711 tons in April, 1926. In the four months of this year, the aggregate of the shipments is 49,175 tons, compared with 82,200 tons for the corresponding months of 1926.

Imports of Gas Oil.

April saw a falling-off in the import of gas oil as compared with April of last year; the quantity being 7,756,903 gallons, as compared with 9,064,099 gallons in April, 1926. The total quantity delivered to the end of April this year amounts to 44,502,254 gallons, against 24,305,939 gallons in the same months of 1926.

Low-Temperature Developments.—It is stated that a working arrangement between International Combustion, Ltd., and Imperial Chemical Industries, Ltd., will have as one of its main objects the development of low-temperature carbonization in this country. Two large plants, one operating the McEwen-Runge process and the other the Kohlenscheidungs or "K.S.G." method, are to be erected. The "K.S.G." process was formerly associated with the Stinnes interests; and a large installation has been operated for several years at the Karnap Colliery, Essen.

SOCIETY OF BRITISH GAS INDUSTRIES.

ANNUAL GENERAL MEETING.

There was a good attendance at the annual general meeting of the Society, which took place on Thursday afternoon, May 26, at the Hotel Cecil, Strand, W.C., under the Presidency of Viscount EDNAM, M.C., D.L., who delivered his Address, which dealt with some important aspects of the coal question. The annual dinner in the evening was a marked success. The new President of the Society is His Grace the Duke of Sutherland.

On the opening of the business proceedings, the minutes of the last annual meeting and of the autumn meeting were taken as read, and confirmed.

REPORT OF THE COUNCIL.

Mr. FREDERICK J. GOULD (Chairman of the Council) read the following report upon the work of the Society during the year 1926-27.

We have to record with much regret the death of the following members:

Alderman F. Templer Depree, Chairman, Willey & Co., Ltd.
J. Wilson Broadhead, Managing Director, Robert Dempster & Sons, Ltd., one of our founders.
The Right Hon. T. McKinnon Wood, Chairman, Glover & Main, Ltd.
Alderman Albert Cliff, Managing Director, Williamson, Cliff, Ltd.,

The Society wishes to offer its congratulations to the following gentlemen:

Viscount Ednam, M.C., D.L., our President, on being appointed a Deputy-Lieutenant of the County of Stafford.
Sir David Milne-Watson, D.L., LL.D., one of our Past-Presidents, on the Knighthood conferred upon him by His Majesty The King.

Board of Trade National Fuel and Power Committee.—We are pleased to note that Sir Alfred Mond is Chairman of the National Fuel and Power Committee set-up by the President of the Board of Trade, and that Sir David Milne-Watson, D.L., and Sir Arthur Duckham, K.C.B., two of our Past-Presidents, are members of that Committee. We have appointed a Sub-Committee to prepare and give evidence on behalf of the Society; and their report will be issued shortly.

Sheffield University.—At the Coming-of-Age Celebrations at Sheffield University, held in July, Sir Robert Hadfield, Bart., F.R.S., one of our Past-Presidents, kindly acted as our delegate, and conveyed our congratulations and good wishes.

Universal Smoke Abatement Exhibition, Birmingham.—A very successful exhibition, at which a number of our members exhibited, was held in Birmingham in September, which showed what is being done by the gas industry towards the abolition of smoke. In connection with the exhibition, a Smoke Abatement Conference was held, at which a number of subjects relating to this important matter were discussed by leading public men and technical experts. During the run of the exhibition, an official visit was paid by the Midland Association of Gas Engineers, when a valuable paper was given by Sir Arthur Duckham on "The Contribution of the Gas Industry to the Problem of Smoke Abatement."

Exhibitions.—This important question, which was referred to by the Chairman at the annual meeting in June, has been under consideration at several Council meetings; and resolutions have now been come to with regard to the co-operation of members of the Society in future exhibitions, which we trust will prove of benefit to all.

Bills in Parliament.—Our Parliamentary Agents have watched Bills likely to affect our members; and we are pleased to report that the Society has derived considerable benefit from their efforts on our behalf.

Distance Lighting of Gas without the use of a By-Pass.—This question has been under the careful consideration of the Society. They are convinced of the desirability of having such a device, and are of opinion that gas lighting would be very greatly assisted if some such method could be found; and research work is now proceeding.

Revision of Railway Classification of Goods.—Messrs. Tweedy & Holt, our Railway Experts at Halifax, have watched our interests at meetings of the Railway Rates Tribunal. Their reports on railway matters are issued in the "Bulletin" and the monthly letter to the members, so as to keep them in touch with these matters. Railway rates on gas meters have been under consideration by the members of Section V. A satisfactory conference was held with the representatives of the railway companies at our office in July; and concessions have since been made by them.

Standard for Flanges and Cast Pipes.—The British standard dimensions for cast-iron flanges for pipes, valves, and fittings for working gas pressures up to 30 lbs. per sq. in., based upon proposals recommended by the Joint Committee of the Institution of Gas Engineers and our Society, have been approved by the British Engineering Standards Association.

Wrought-Iron Tubing Inquiry.—The Institution of Gas Engineers have now approved the specifications for strip and for tubes recommended by the Wrought-Iron Tubing Committee, with which we have been associated; and these have now been published.

Translucent Glassware for Lighting Fittings.—The British Engineering Standards Association are dealing with this question; and we are co-operating with them.

Refractories.—The meetings of the Refractory Section of the Ceramic Society were held at Leeds in September under the Chairmanship of Mr. Frank West, M.I.Mech.E. There was an excellent attendance, including a large number of members of Section X. of the Society, all of whom are members of the Ceramic Society; and some very interesting papers were read and discussed. The members also visited the University of Leeds, and inspected the Departments of Coal Gas and Fuel and Refractory Materials, and also the model gas testing plant. The report of the Refractory Materials Joint Committee was presented at the annual meeting of the Institution of Gas Engineers in September.

British Commercial Gas Association.—The propaganda work of the Association is proving beneficial to all engaged in the industry. Particulars of this work have recently been put before you; and the Council hope that all members will give the Association their support. We congratulate the Association on their very successful annual conference in Newcastle-on-Tyne, at which a number of our members were present.

Gas Fire Flues.—Some of our members were approached by the engineer of a well-known gas undertaking on the question of constructional work in connection with gas fire flues. A number of cases had arisen where totally inadequate-sized flues had been built in the thickness of the wall, with a view of economizing space. At the same time, the British Commercial Gas Association had their attention drawn to the tendency in some parts of the country for houses to be erected without flues of any kind. The matter has been taken up with the Ministry of Health; and we hope some satisfactory solution will be found.

New Section for Makers of Tubes and Pipes.—At the autumn meeting, it was agreed to authorize the Council, if thought fit by them, to form a new Section, No. XV., for Makers of Tubes and Pipes, and to make the consequent addition to Rule VI. Several important firms having become members, the new Section has now been formed. We welcome the addition of these firms.

The prizes in the City and Guilds of London Institute Examinations in Gas-Works Practice, Gas Supply Practice, and Gasfitting, have been duly awarded, and announced in the Technical Press. The Institute state they are confident that the award of these prizes is an incentive to serious study on the part of their candidates.

The Society wishes to accord its best thanks to Viscount Ednam, M.C., D.L., for his valuable services during his Presidency. On his retirement, he has been pleased to accept the office of a Vice-President; and we hope that we may long have the benefit of his counsel and advice.

We desire to place on record our best thanks to the Right Hon. Sir Alfred Mond, Bart., M.P., for his able and valuable Presidential Address at the last annual meeting; also to Mr. Frederick J. Gould, Chairman of the Council, for his paper at the autumn meeting entitled "Gas Lighting," which led to a good discussion.

We have much pleasure in announcing that His Grace the Duke of Sutherland has accepted the Presidency of the Society for the coming year.

On behalf of the Council,

FREDERICK J. GOULD, *Chairman.*

Mr. GOULD said that, before he moved the adoption of the report, he would like to thank the members of the Society and a large number of friends all over the country for interesting letters and criticisms on the subject of the paper which he read at the autumn meeting. These comments had proved very gratifying to him. In all, he received something like 300 letters, some of them from men he had never met; and this showed the interest taken in the affairs of the Society generally. He would be glad also to take the opportunity of thanking everybody for the support that had been extended to him during his year of office. He wished he could have done better. Their good friend Mr. Tilley told him a couple of years ago that it would be a very good experience for him. It had been an amazing experience. There were some very fine men in the industry, and one felt all the better for having come into contact with them. Their kindness was almost unbelievable. He formally moved the adoption of the report.

Alderman GEORGE CLARK, seconding, said that if anything were needed to demonstrate the usefulness of the Society, it would be found in this report, which embraced so wide a field of activity. The passage of time had amply justified the formation of the Society, which enabled the manufacturers to express their views on important matters connected with their industry. Much, however, as the Society had done in the past, they confidently anticipated that in the future its activities would be still further extended, and its usefulness be more fully felt.

The report was adopted.

THE ACCOUNTS.

Mr. CHARLES CLARE (Hon. Treasurer) next presented the accounts for 1926, and moved their adoption. They showed, he said, that the finances were in a very satisfactory condition. They had a good balance in hand; and there were some investments as well. He felt glad to think that he was leaving to his successor a "treasury full of gold."

Mr. THOMAS A. BRADDOCK seconded the proposition, which was agreed to.

COUNCIL REPRESENTATIVES OF SECTIONS.

The PRESIDENT (Viscount Ednam) announced that the following gentlemen had been elected to serve on the Council as representatives of the Sections:

Mr. G. J. Jackson	to represent	Section		I.
Mr. J. Winson Scott	,,	,,	,,	II.
Mr. Charles S. Bennett	,,	,,	,,	III.
Mr. Samuel Cutler, A.M.Inst.C.E., M.I.Mech.E.	,,	,,	,,	IV.
Mr. Thomas A. Braddock	,,	,,	,,	V.
Mr. Cyril G. Davis, M.I.Mech.E.	,,	,,	,,	VI.
Mr. H. Talbot, B.Sc., A.R.C.Sc., M.I.Chem.E.	,,	,,	,,	VII.
Mr. Thomas F. C. Potterton	,,	,,	,,	VIII.
Mr. John Orme	,,	,,	,,	IX.
Mr. Frank West, M.I.Mech.E.	,,	,,	,,	X.
Ald. George Clark, J.P., M.I.Mech.E.	,,	,,	,,	XI.
Mr. Arthur H. Lymn, M.I.Chem.E.	,,	,,	,,	XII.
Mr. B. B. Waller, A.M.Inst.C.E.	,,	,,	,,	XIII.
Mr. Frederick Dobson, C.C.	,,	,,	,,	XIV.
Mr. E. J. Fox	,,	,,	,,	XV.

NEW CHAIRMAN AND VICE-CHAIRMAN OF COUNCIL.

Mr. J. WILFRID DRAKE said it was a great pleasure to him to propose the election of Mr. R. B. Hodgson, M.I.Mech.E., as Chairman of the Council. They all knew Mr. Hodgson, and esteemed him. They were looking forward to a successful year under his guidance, and were confident that they would not be disappointed.

Mr. ARTHUR H. LYMN seconded, with the remark that they all knew the good work he had done for the Society.

The motion was passed by acclamation.

Mr. HODGSON said he appreciated the high honour that had been done him in electing him Chairman of the Council; but he fully realized his limitations. He had been associated with the Society in one way or another for some fifteen or sixteen years, and knew a little about its ramifications, and of the good work accomplished during the twenty-one years of its existence. Of all the excellent Chairmen who had presided over their deliberations, it would be difficult to say that one had been better than another, because every one had given unstinted labour and valuable aid. He would endeavour to follow in the footsteps of these gentlemen, and to do everything he could in the interests of the Society.

Mr. SAMUEL CUTLER moved the election of Mr. R. J. Milbourne, J.P., Assoc.M.Inst.C.E., F.C.S., as Vice-Chairman of the Council. Mr. Milbourne, he said, was Managing Director of Messrs. C. & W. Walker, one of the oldest-established firms on the constructional side of the gas industry; and his Company had been associated with the Society since its inception. He himself had been connected with the Society as a member of the Council for a long period, and had done a great deal of quiet, unobtrusive work, which had been of very great assistance to the Society. They were now asking him to take a more prominent position.

Mr. CHARLES S. BENNETT seconded the motion, which was cordially agreed to.

Mr. MILBOURNE, returning thanks, said it was quite true that he had taken a keen interest in the work of the Society for a number of years. He felt that its sphere of influence would gradually increase as the years went on. Looking back over the twenty-one years' existence of the Society, it must be realized that an enormous amount of work for the gas industry had been accomplished. The Chairman, Mr. Gould, had presented them with a very practical paper. The last time they met, he (the speaker) ventured to suggest that the Chairman for the time being should select a subject with which he happened to be intimately acquainted; and the example which Mr. Gould had set them was one which might well be followed by succeeding Chairmen. The result of that paper was revealed in the report, where it was stated that the question of distance lighting of gas without the use of a by-pass had been under the careful consideration of the Society. Personally, he regarded this as a very important detail of the gas industry at the present time. If once such a method could be secured, there was very little doubt that gas would be installed for lighting instead of electricity. It was continually being pointed out that, whereas electric lights were easily switched on and off, with gas one needed a by-pass—a method which it was generally admitted was unsatisfactory.

OTHER OFFICERS.

Mr. C. A. GOODALL remarked that unfortunately the time had arrived when Mr. Clare had to give up his office; and this being so, he had pleasure in proposing the election of Dr. E. W. Smith, F.I.C., as Hon. Treasurer. He would be a worthy successor to Mr. Clare.

Mr. FRANK WEST seconded this, and it was agreed to.

On the proposition of Mr. B. B. WALLER, seconded by Mr. T. F. C. POTTERTON, Mr. E. J. Davison, M.I.Mech.E., was re-elected Hon. Secretary.

Mr. FREDERICK C. TILLEY proposed the election of Mr. F. J. Gould as an elective member of the Council; and it was carried.

Moved by Dr. SMITH, and seconded by Major RICHARD MILES, Messrs. J. Wilfrid Drake and C. A. Goodall were re-elected as elective members of the Council.

The re-election of Messrs. Cash, Stone, & Co. as Auditors was agreed to on the motion of Mr. A. W. GLOVER, seconded by Mr. E. J. DAVISON.

Thereafter, on the proposition of Alderman GEORGE CLARK, seconded by Mr. E. J. FOX, the Council were heartily thanked for their services during the past year; and a similar compliment was paid to the Hon. Treasurer, the Hon. Secretary, and the Secretary, on the motion of Mr. GOULD, seconded by Mr. HODGSON. Referring to the retirement of Mr. Clare "after a very long innings," Mr. Hodgson pointed out that he had been associated with the Society from the very beginning, and had acted as Hon. Treasurer for a considerable number of years. The services rendered by Mr. Clare were deeply appreciated by the Council; and they hoped it would not be long before he was back again.

Mr. CLARE, returning thanks, said the Treasurership had been a pleasure to him. With regard to Mr. Griffith, he did not know what they would do without him. He had been Secretary from the very beginning, and was the right-hand man of both Presidents and Chairmen.

PRESIDENTIAL ADDRESS

Of VISCOUNT EDNAM, M.C., D.L.

CHEAPER FUEL.

Some Ideas and Observations.

We cannot help realizing that there is in progress to-day an awakening among the power producing and power consuming public to the need for a careful revision of the standard

THE PRESIDENT.

Viscount Ednam, M.C., D.L.

forming the basis of fuel utilization, and for greater fuel economy generally. The awakening is undoubtedly largely due to the stimulating advances of applied science in the gas industry of this and other countries during the past century.

This great and expanding industry is a monument to applied scientific research, and a fine example to all fuel-using industries. From its very inception it has fostered and encouraged the investigation of all problems associated with the economical production and distribution of coal distillates—its primary and most important products; and as we consider the immense structure now attained by the industry, we realize that it mainly exists for one great object and purpose—namely, the production and distribution of heat at the lowest possible cost.

Its close associates, the coal and electrical industries, stand also for the same purpose, the former entirely and the latter to a very considerable extent. Heat, then, is the foundation upon which these three vital industries are built, whether its ultimate purpose be for power production, or for the equally important domestic purposes of cooking, warming, and light-

ing. It appears to me, however, from my small practical experience, impossible to suppose that electricity can ever supplant gas for the latter purposes. I feel certain that heat in the form of gas will always remain the most economical and the most convenient form for the household.

Now the fundamental aim of the heat producing industries is to cheapen both the cost of their products and their distribution to the consumer, at the same time concentrating attention on the form in which heat is most likely to find favour. The only rational basis of sale for heat is the British thermal unit or the therm, and the gas industry was the first to give a lead in this important direction. Other factors influencing sale are the ease with which the products can be handled, and their thermal efficiency as energy producers. Thus, when one compares one fuel with another, one does not merely consider the cost of the therm in each, but also the amount of labour saving involved in their utilization. Hence the cost of the therm *plus* the labour involved in its conversion into heat or energy must be taken together in assessing their relative values. The costs of transporting and storing fuel are also factors of great importance, especially in these days of heavy railway freights. In this respect I was greatly interested in an excellent article published about a year ago in the "GAS JOURNAL" (Vol. 173, p. 341) by Mr. Harald Nielsen dealing with the question of long distance transmission of town gas for use in cities, villages, and country districts.

I should like to quote the comment of the "JOURNAL" on this article, which was as follows:

> In many respects the paper is admirable and deserves close study by all gas engineers, particularly at the present time when the grouping together of electrical works may have to be followed by similar treatment of gas-works, as well as manufacture and distribution from central stations situated at the coal mines. If such a revolution would prove successful in the case of electricity, why not for gas?

THE POSITION OF FUEL OIL.

As a nation, Great Britain is highly favoured in its fuel resources. It has coal sufficient for its needs for many years to come, and it has acquired an interest in the fuel-oil resources of the world which is by no means insignificant. The oil interests of this country, the apparent significance of oil as a factor in national defence, and the growth of the motor-car industry, have, I think, resulted in an unjustifiable public belief that the age of coal is past, and that oil, and oil alone, must be the fuel of the future. I do not believe that real facts justify such a conclusion in the least. All our fuel oil must be imported, and its present cost per therm is about 2½ times greater than the cost of a therm in coal. It will be admitted, I think, that this ratio of cost is likely to be increased as the fuel oil resources tend to become exhausted, or under political variations. Our foreign supplies may be cut off entirely if oil exporting countries become involved in war or national upheavals. On the other hand, oil possesses distinct advantages in that its thermal capacity per unit volume is higher than that of coal, it is more easily transported and handled, and it allows of great flexibility of control during combustion. Under certain conditions it is claimed that these advantages compensate for the increased cost of heat units in the oil. How long this opinion, among fuel-oil consumers, will remain is a matter of speculation, but I am one who is prepared to prophesy that coal will take the place of oil in all forms of large power plants now using oil. The motor-car will, I suppose, continue to demand its supply of petrol in ever-growing quantities, unless the car of the future is propelled by wireless—which may not always be convenient—or some other hitherto undiscovered form of power.

One feels that there is a tendency among engineers to say to the fuel industry: "Here is my heat engine—now give me the fuel to run it;" instead, on the other hand, of the fuel producer saying to the engineer: "Here is the cheapest fuel which Nature can provide. We will set our house in order so as to sell it at the lowest price. Now you design your engine to utilize it efficiently."

LOW-TEMPERATURE CARBONIZATION.

During the past few years a great deal of attention has been given both technically and publicly to new fuel processes, particularly to the low-temperature carbonization and the hydrogenation of coal, the objects being both to supplement our foreign supplies of fuel oil and motor spirit, and also to provide a yet cheaper fuel for power production in the form of semi-coke. One does not want in any way to discourage research investigations in these branches of coal treatment; indeed, I know that great strides have been made, and that eventually these processes will undoubtedly be proved. But I fear that it appears that we still have some distance to go before we can take them up commercially.

Suppose one could see clearly a reasonable profit from the bye-products—the oils, spirits, and gases obtained from a particular low-temperature carbonization system—one still has to be assured of a ready sale for the main product, semi-coke.

I consider not only that a considerable period will have to elapse before our industries and domestic consumers are sufficiently advanced to utilize it in large quantities for power, heat, or light, but also that at present it does not seem to compare favourably in calorific value or price with other forms of fuel. If a market for semi-coke cannot be maintained, the low-temperature process at once becomes uneconomical.

[At this point, the President remarked: I went over myself a year ago to America, and saw one of the processes that it was claimed had been proved; and I think it has been nearly proved. But there still remains the problem of the semi-coke; and I have been disappointed with the figures which I have seen as the result of a year's work with this particular system. It seems to me we have still some way to go; but I do not despair of effecting this process eventually. I think we ought to do all we can in this country to push ahead with scientific work in this direction, and not leave it all to America and Germany.]

HYDROGENATION.

What of hydrogenation? This is a process which attempts to convert the bulk of the coal into liquid fuel. If such an operation could be carried out cheaply, it would be a great boon to industry; but one does not yet see the possibility in sight. Recent experimental work in connection with hydrogenation has shown that only a few British coals yield as much as between 50 and 60 p.ct. of their weight (on the ash-free, dry basis) of oil.

The Arley coal in Warwickshire appears to yield 60 p.ct. of oil, and after fractionization this yields petrol, kerosene, heavy fuel oil, and pitch. The percentage yields of the coal itself on the ash-free, dry basis amount roughly in a particular instance to about 10 p.ct. of petrol, 15 p.ct. of kerosene, 10 p.ct. of pitch, and from 20 to 30 p.ct. of heavy fuel oil. The majority of the coals, however, give less than 30 p.ct. of oil, and some will not hydrogenate at all. Apart, however, from the results obtained, the costs of hydrogen, and of the process itself, are so great as to discount any hope at present of its becoming commercially profitable. It is cheaper to make fuel oil synthetically than to hydrogenate coal. The future appears to hold greater possibilities for the partial gasification and the complete gasification of coal. It is not unlikely that means will be found for producing synthetic oil from gasified coal; but in any case gasification and the production of electrical energy have an unlimited field before them.

A properly-designed steam energy producer is more economical than the internal combustion engine for fairly large power outputs, and it is likely that coal or gas will replace oil in all instances where it is now used for small industrial power generating units in this country. The steam turbine has immense possibilities; and I cannot see the Diesel engine maintaining its position for many years. However, the crux of the fuel industry in Great Britain centres round cheap coal. This seems to me to be so vital, as a national asset, that I propose devoting the remainder of my address to the subject of coal production and treatment.

THE COAL INDUSTRY.

The coal industry is the most harried and unsettled industry in the country. Owing to its national importance, it attracts a great deal of public attention and very little public understanding or sympathy. Owing also to the numerical strength of its Employees' Union it has to stand an undue amount of political limelight—in my opinion an unfortunate occurrence for any industry.

Yet everyone recognizes the fact that the coal miner is the finest specimen of British labour in the country—everyone admires him, and everyone is eager to help him. Not the least admirable of his qualities is his loyalty to his Union—a Union so sadly mismanaged in his interests and those of industry and of the country as a whole.

We have recently emerged from a calamitous national coal strike—calamitous I fear for all, but most particularly for the mine workers themselves. And yet I know that many of the miners' leaders are men with sincere views honestly seeking to improve their lot. As a coal owner I say to these men: "Enough of these foolish and disastrous squabbles. What gain is there in them for anyone, and how much loss and suffering? Let us have peace; let us get together and understand each other's difficulties; let us have more of the 'Froth-blower' spirit!"

It is the business of the coal industry as a whole to take itself to task, and ask itself how it can cheapen production, and yet pay the miner the best possible wage, prove to him that a good day's work is a good investment for him, and at the same time improve his social amenities. Many collieries are mining coal and drawing it to the surface up shafts sunk a hundred years ago, shafts which are so small in diameter in comparison with modern ones that the output is thereby limited. At the same time the workings are at long distances from the pit bottom. Yet these collieries are attempting to pay their way. In some instances, where such collieries are conveniently situated in respect to industrial areas, they are

able to work at a small profit; but in others—and they are by no means few—they are working at a loss.

Amalgamation.

Obviously from an economic standpoint they should close down; but what is to become of the men thrown out of work? The larger and newer collieries cannot absorb them, because they themselves must increase output per man by introducing more and more labour saving machinery and employing fewer and fewer men. The industry has not a free hand, it is bound up with the economic affairs of the country as a whole. Other industries cannot absorb the miners thrown out of work—at least not until their markets have been expanded by a reduction in costs, taxation, and the cost of living; neither can our colonies develop with sufficient rapidity to ease our burden of unemployment. What then is the alternative? It is amalgamation. The grouping of collieries under one controlling hand gives shareholders a better chance of securing an interest on their capital—a vital necessity if the public is to be induced to put its money into mines, and thereby provide more work for the miner. Secondly, it tends, by the saving in costs and administration, to provide better wages and a greater security of tenure for the employees. Further, an amalgamation can claim more capital for improvements—thereby facilitating the introduction of underground coal cutting and conveying machinery.

[As to this, the President added: I think it is very important indeed to colliery undertakings in these days that they should consider whether they cannot reduce costs by such means as taking the men to the face by electric conveyors. If every colliery possessed adequate conveying arrangements, a great deal of money would be saved.]

By this means collieries which under individual ownership would have to go out of existence would be able to survive. The next ten years will witness many advances in this direction, but if the cost of production is to be materially reduced by grouping or amalgamation, very careful consideration will be necessary as to the geographical and technical suitability of the individual component collieries of a particular group.

I would particularly like to stress the importance of the geographical element in coal mining generally, as this appears to be so little understood by the public as a whole. If the industry is to prosper in the future, I am confident that it will only be by closely considering local variations and conditions on such questions as wages, hours, welfare, and administration. An outstanding advantage of the grouping of which I speak is that it provides increased facilities for the centralization of coal treatment plant.

[Before I leave the question of amalgamation, interpolated the President, I should like to stress its importance. I regard it as unfortunate that, as a country, we do not seem somehow to amalgamate as easily as is done abroad. We seem to be unduly suspicious of one another; we seem to be frightened that by amalgamation we shall lose our jobs or lose our money. In some cases, of course, that must be so; but in the coal mining industry, as well as in other industries, you have got to clear out the wasters. That is only right in any industry whether it be the case of the administrative personnel or of the workers, the best men must come to the top, and the men who are no good must get out. The sooner that is faced, the better will it be for the coal industry—and, indeed, for many other industries at the present time.]

Coal Treatment.

The object of the coal industry will tend more and more towards the sale of heat units and the consequent elimination of inert material in the form of dirt. The annual output is (say) 260 million tons, and the average dirt content of the coal as marketed is (say) 10 p.ct.—*i.e.*, 26 million tons of dirt is sold as coal, and transported at tremendous cost from the mine to the consumer. The amount of money and human effort which is dissipated in loading and unloading all this waste material on to and from trucks, shovelling it into boilers or gas producers, and eventually disposing of it in the form of ash is appalling to contemplate, apart from combustion efficiency which is lost by its presence.

At least 30 p.ct. of the dirt content can be, and ought to be, removed before the coal leaves the colliery. That this dirt is sold is not the fault of the mine owners; it is the business of the consumer, and to his economic advantage, to demand clean coal and compensate the coal industry for the cost of cleaning.

Thus it appears common sense for the public to demand clean coal of the size best suited to the conditions for which it is required. The coal industry must devote its attention to this problem; and any research work which can be undertaken with a view to cheapening coal cleaning processes, especially dry ones, is of national importance. In order also to prevent the waste of small coal in mining operations, it will be necessary to extract all of it, however small, and turn it into a marketable product. The cleaning and subsequent treatment of small coal, and by that I mean coal below a quarter of an inch in diameter, is by no means a simple matter. Dry cleaning ought obviously to be applied to extract the associated dirt. The utilization of the coal may then be effected by one or more of the following processes: Briquetting, pulverized coal firing, colloidal fuel firing, and gas generation.

[Here the President added: No doubt many of you, as I did, saw the excellent Birtley dry cleaning plant when we were at Newcastle with the British Commercial Gas Association last autumn. Since then, I hear, a great many collieries have been taking up this particular apparatus. As I say, it is for the fuel-consuming industries to push ahead with this cleaning question. It is for them to demand clean coal. It is not so much the responsibility of the collieries to do it, and to educate their customers to the necessity of using clean coal. It is a question which I think particularly affects the gas industry.]

It must be realized that economy in the use of fuel will gradually result in a falling-off in demand for coal for home consumption. This will not be to the country's disadvantage if our export trade can be increased and maintained at its highest level. Since we have to import the bulk of our food, we must maintain our coal exports in order to cheapen freights. Coal export involves competition with countries which are now doing all they can to cheapen their coal production. This means that the organization and administration of the coal industry will need to be put on a far higher level than it stands to-day. Our collieries will have to be run on up-to-date workshop lines. The elimination of waste in time and material will be a dire necessity; and this can only be done by a very careful and critical analysis of the working conditions of every department in the operation of coal mining. Each colliery will need an efficiency engineer with student improvers under him; and their business will be to carry out research on the spot, to eliminate waste and increase production. Indeed, every man and boy employed by the colliery, and thereby having a stake in its welfare, should realize that it is to his advantage to do everything possible towards increasing output and stopping waste.

All this will demand young men with brains and initiative—men with capacity for leadership, men who will take the trouble to understand the miner and give him a square deal. I do not believe that the mining industry is attracting its proper complement of first-class brains, considering its great national importance. Young men have fought shy of taking up mining as a profession, and think they have a better chance in other industries. The most vital need of the coal industry to-day is new blood and brains—the finest dividend-producing investment it can make. It needs the very best boys our schools can turn out; and in order to secure them it must offer suitable inducements. A broad view must be taken, and without loss of time.

Coal Mining and Healthy Work.

Coal mining is one of the most healthy of occupations; and this is largely due to the ingenuity and ability of its engineers. I believe it is a fact that, except for the clergy and the farmers, those engaged in the mining industry are longer-lived than any other class of worker in the country. And yet the majority of people are all too ready to enlarge upon its dangers and rigours.

I am the first to admit, however, that it has disadvantages in that the social amenities it offers are apt to fall short of the general standard of the population of the country, and particularly as compared with conditions obtaining in some foreign countries.

The amelioration of these conditions should quite rightly be a primary charge upon the accumulated profits of a colliery company; but the difficulty is that in most cases financial facilities are lacking under present conditions. Up-to-date housing schemes and such-like social improvements are, like the equally important question of installation of new plant and machinery, beyond the purses of colliery companies—depleted as they are by so many years of industrial depression.

But the fact remains that the standard of living is a most important factor in industrial unrest. If miners live under clean, healthy, and sunny conditions, the result of their labour will be far more valuable than if they live herded together in old-fashioned colliery villages amid grimy surroundings and under slum conditions. If they can be provided with good houses and gardens and can be taught to appreciate the joy of a clean and healthy home life, then contentment will prevail; and this, combined with good wages, will give peace in the industry.

Modern colliery villages are well laid out with recreation rooms and grounds, clubs, schools, and a church. The houses usually consist of a kitchen, parlour, three bedrooms, and a bathroom. All rooms are electrically lighted, and hot water from a central circulating system at the collieries is laid on to the kitchen and bathroom. The introduction of a hot-water circulating system for a whole colliery village accommodating (say) 2500 miners and their families suggests the use on a large scale of this new system of heat transmission which has many advantages and is capable of wider application.

Summing-up, a cheap and constant supply of coal can only be maintained by making use of some of the best brains in the country, by utilizing the most up-to-date coal producing and treatment machinery, and by treating the employees with human consideration.

All fuel industries must eventually be driven back upon coal

THE ANNUAL DINNER OF THE "S.B.G.I."

and its derivations as the source of heat for domestic and other purposes. It is therefore vital to all interests—national, industrial, and especially in your own sphere of gas engineering—that the coal industry should be protected against political agitation, and that its reorganization should be assisted, and research into its many problems encouraged, with all available resources and without delay.

I am afraid I have rather concentrated on the coal question; but it is a question that I know something about, and I thought it better not to go deeply into gas matters, as to which I am so ignorant compared with all of you.

Vote of Thanks to the President.

Sir Arthur Duckham, K.C.B., said he had been honoured by being asked to propose a vote of thanks to the President for his address and for the work he had done for the Society during the past year. This was a fairly easy thing to do, because the address and the work had been such as to command the appreciation of all of them. They must agree that the President had given them a wonderful exposition of the coal mining industry in this country; and he had certainly touched upon the most vital points of that industry. The coal industry was naturally the basis of the gas industry's work and interests; and the gas industry was as keen as the colliery proprietors to see the betterment of the coal industry. The output in this country was exceeding the demand; and the collieries wanted to increase their business. To do this, their export trade was essential; and the way to get this back was by supplying a better and cleaner coal than their competitors. Taking it all round, British coal had a better name than other coals; but to recover their lost trade they had to see to it that they made it a better coal still. Another point which interested them was the development of the colliery industry. For his sins, he (the speaker) had been mixed-up with some colliery undertakings; and he had felt the necessity for something being done. The idea of amalgamation, which was already so much to the fore, and would come more to the fore in the future, would undoubtedly result in the more economical working of the collieries. But one of the things they had to face was the possibility of collieries endeavouring, by centralized stations, to secure a larger revenue by the sale of electricity and gas. The Electricity Commissioners were considering the question; and he thought it had been shown that the collieries could produce electricity cheaply enough to compete with the super-power stations. Recently there had been an increasing amount of gas bought from collieries; and this situation should certainly be carefully watched by the Society, because it might affect a great many of their activities. If, however, the electricity, or the gas, was sold at a profit by the colliery, then it would mean greater prosperity to the colliery industry, which, after all, was the basic industry in the commercial life of this country. He had just returned from a visit to America, where he had been rather struck by the coal handling and cleaning apparatus. It was particularly interesting to note how they had developed machinery to work the very thin seams. The Society had been very fortunate in its Presidents, who had been drawn from various spheres. In Viscount Ednam they had someone who was closely related to them through his colliery and steel interests; and they recognized that he had taught them a lot during his Presidency. He only hoped they might retain his interest in the future.

Mr. Gould seconded the vote of thanks, and emphasized the services of Viscount Ednam, who was one of the best Presidents they had had, to the Society. [Applause.]

The New President.

The President said it only remained for him now to thank the members most sincerely, not only for their kindness to him that afternoon, but for the pleasing manner in which they had received the vote of thanks and the great consideration they had shown him during the whole of his Presidential year. He would not easily forget their kindness. It was a great source of pride and pleasure to him to have held the honourable position of President of their Society; and he was glad to think that this honour was not going entirely out of the family—for another year, at any rate. He had now to introduce to them their new President, the Duke of Sutherland. [Applause.] He was certain they would find his brother-in-law a much

more efficient President than he himself had been. He was Paymaster-General, and therefore should be more popular. He was glad to think that his own connection with the Society was not to be severed, as they had been good enough to elect him a Vice-President. At all times he would be only too pleased to render what assistance he could.

The DUKE OF SUTHERLAND briefly expressed his pleasure at occupying the position of President, and assured the members that he would do his best to assist the Society.

ANNUAL DINNER.

In the evening the members, with many distinguished guests, met again in the Hotel Cecil, where the annual dinner took place. This was followed by a number of highly interesting speeches, and some excellent musical items, for the arrangement of which Miss Millicent Russell was responsible.

The PRESIDENT (Viscount Ednam, M.C., D.L.) was in the chair; and on his left-hand there sat His Grace The Duke of Sutherland, Sir David Milne-Watson, D.L., LL.D., Sir Mark Webster Jenkinson, K.B.E., Mr. John Wilkinson, O.B.E., Mr. Frederick J. Gould, Mr. John Terrace, M.Inst.C.E., Mr. Samuel Cutler, A.M.Inst.C.E., M.I.Mech.E., Col. E. T. Blyth, C.M.G., LL.D., Mr. F. C. Tilley, M.I.Mech.E., Mr. W. E. Price, A.M.Inst.C.E., and Mr. H. C. Smith, A.M.Inst.C.E. On the right hand of the President were: The Most Hon. The Marquess of Londonderry, K.G., P.C., Sir Burton Chadwick, M.P., Sir Arthur Duckham, K.C.B., M.Inst.C.E., Mr. Frank Hodges, J.P., Mr. B. B. Waller, A.M.Inst.C.E., Mr. Frank H. Jones, M.Inst.C.E., Mr. R. B. Hodgson, M.I.Mech.E., Mr. F. W. Goodenough, C.B.E., Mr. Charles Clare, Mr. Douglas H. Helps, M.Inst.C.E., and Alderman George Clark, J.P., M.I.Mech.E.

The Most Hon. the Marquess of Londonderry, K.G., P.C.

The MARQUESS OF LONDONDERRY, after the Loyal toast had been honoured at the call of the President, said: My first duty, and a very pleasing one it is to me, is to thank you, Lord Ednam, and you gentlemen, for having extended to me an invitation to be present on this important occasion. My deep regret is that, while I have been called upon to propose the toast of the evening—"The Society of British Gas Industries"—I feel that there are many here who are far better qualified to propose that toast than I am, and who know a great deal more than I do about that industry with which you are so closely associated. When I entered this room, I was under the pleasing delusion that Sir Philip Cunliffe-Lister would be here, and would take all the duties on his shoulders, and that my task would be simply the very nice one of eulogizing your President. I studied the programme, and to my horror and astonishment saw that this pleasant task was included in the toast of the Society of British Gas Industries. But I am going to play the coward—to plead my inefficiency, and to leave the sterner duties to the more able representative whom Sir Philip Cunliffe-Lister has sent here in the person of Sir Burton Chadwick. He is a distinguished member of the House of Commons. I also have to be very careful of what I say, because on my right I find Mr. Frank Hodges. Mr. Hodges and I have at times approached questions from perhaps a different angle; but I know quite well that he has been imbued, as I hope I have been imbued, with the desire to do everything possible to benefit the industry with which we are both of us so closely associated. I do not know if he will think it presumption on my part; but I do venture to say that I have admired the immense courage which he has shown in putting his opinions forward on many occasions—opinions which have not always been palatable to those with whom he has been associated—because he has believed that these opinions are beneficial to the country which we all endeavour to serve.

DEPENDENCE UPON RESEARCH.

Now, gentlemen, may I pay a tribute to your Society? I think I am right in saying you are in the twenty-second year of your existence; and I am sure, speaking as one of the public, that we none of us fully appreciate the benefits which societies of this description confer upon trade in general. You occupy yourselves with research; and I think that we are all becoming more and more convinced of the fact that the future prosperity of British industry depends upon the efficiency of our research. ["Hear, hear."] The gas industry is opposed by a formidable competitor in electricity; but I am quite convinced that there are spheres in which both can operate for all time. The idea that one is competing with the other is really not quite the correct idea, because there is opportunity for both these industries in serving the great community of this country. I speak to you to-night as one—if I may use the expression—"on the opposite side of the counter." I endeavour to sell to you the products of the industry of which I am a humble member. I know the difficulties we have all gone through during the past year. They have re-acted in a terrible way on your industry. When I meet a man in the street, he usually pulls out a gas bill, and tells me of his dismay and astonishment at the fact that the charges which are imposed upon him are higher even than in the past. [Laughter.] My duty, perhaps, is to say a few words to you about that great industry upon which we all depend—the basic industry of the country. With the prosperity of the coal trade, the prosperity of the country is closely intertwined. I am one of those who may claim to be optimists. I believe that the dark clouds which surround us now will in time be dissipated. The Chancellor of the Exchequer tells me, in his usual florid phraseology: "The tide has turned, and we are all on the up-grade." When I look upon my balance-sheet for the week, I sometimes feel I cannot entirely agree with him; yet still I am an optimist. I believe that these long lanes do have a turning. I am quite convinced that if we co-operate with each other, if we can realize each other's difficulties more than perhaps we have done in the past, we shall see trade on the up-grade, and we shall be able to move steadily forward to an era of prosperity which has never been rivalled in the past.

A GIGANTIC ENTERPRISE.

I am not only addressing optimistic words to you. I may say that at this moment I am embarking upon what, to a humble individual like myself, is a vast enterprise. We are told that nationalization would bring about the millennium. It is not my intention to say anything to-night of a controversial character; but I somehow feel that the leaders in the movement towards nationalization would hardly have gone upon what might have been, and what looked at one time, the fool's errand of entering a very fertile turnip field in the County of Durham and digging a hole there in the hope of finding coal. One can imagine the member for such-and-such a constituency saying in the House: "I should like to ask the President of the Board of Trade whether it is true that the Government are digging a hole in a turnip field in Durham, and are hoping within the space of five years, at a distance of 2000 yards, to find coal." I am quite sure the reply of the President of the Board of Trade, or his representative, would have been: "The answer to the question is in the negative." Well, to depart from frivolity, I am doing that at the present moment; and I am doing it simply because I believe in the future—because I believe that, unless we go forward, and unless we are determined to make the industry in which we are interested a success, we are bound to fail as a nation. ["Hear, hear."] Work on this new colliery was commenced in November, 1923; and if circumstances continue to favour me, I hope to be drawing coal from one of the two shafts perhaps within a year from the present time. The whole cost of that colliery, including the miners' houses, will approach a million pounds sterling; and for over five years I shall have been expending a large sum of money without receiving any return for it. When the undertaking is complete and fully at work, it will add a million tons of coal per annum to the national production, and will find employment, as time goes on, for some 3000 men for, I trust, many decades to come. As I say, I hope to make the venture a success. If it is not a success, you will probably find me in a boat going to Canada or Australia. Well, if that is the case, I shall endeavour to do the same thing over there.

GET TOGETHER.

On such an occasion as this, there are many matters upon which one would like to dilate; but unfortunately I feel that some of you may think I am too steeped in the political world to be able to take an unbiased view of the future as it lies before us. I must, however, say I am quite convinced that all the influences are present, both among the employers and among labour, for the fruition of the hopes which are in the minds of all of us. The difficulty which none of us seems to have overcome is that of finding out what will bring us together, and enable us to co-operate for the benefit of ourselves, of the community which we represent, and of the Empire of which we are so justly proud. No doubt, many of you have read speeches I have made. I will not say that I have been able to put forward any concrete plan. All I have, probably very inefficiently, endeavoured to do is to preach co-operation—to make the community realize that there is no battle waging between employers and employed, that the great majority get on very well together, but that when we are plunged into the vortex of political turmoil all our wise ideas seem to go by the board. Is it possible to cut politics out of industry? This is a subject that is very close to my heart, though I feel that on such an occasion I have no right to go very deeply into it. But sometimes I wish that there was no such thing as politics, and that we were allowed to come down to bedrock together and work-out the solution to the problem. There is Mr. Hodges, who has the power to do an immense amount; and I can assure him that in all his endeavours he will have my most hearty co-operation. The final point in my toast is to couple with it the name of your President. May I say that I think you are extremely lucky to have had Lord Ednam occupying this position? He is one of my very best friends. He has had a distinguished career in the army; he has been a member of the House of Commons; and now he has gone heart and soul into the industrial world. For what he did in the army, he received the Military Cross; and no one deserved it more. In the House of Commons he did yeoman service, and to-day we find him in the van of industry. It is to men like him that we look to bring about the conditions that we all hope to see.

Viscount Ednam, M.C., D.L.

The PRESIDENT: It is a tremendous honour, and one of which I am deeply sensible, to preside over such a distinguished assembly, and to respond on behalf of the Society to the toast which has just been proposed in so kind and so able a manner by my noble friend Lord Londonderry. I feel sure that all of you, like myself, are in hearty agreement with every word that he has said. We offer him a hearty welcome; we thank him for having honoured us with his presence, and I think I shall be voicing the sentiments of everyone in this room in expressing the hope that on some future occasion he will honour the Society by occupying the Presidential Chair. [Applause.] I may say that I succeeded to the Presidency on a very notable occasion—the occasion of the Society's twenty-first birthday. My predecessor in office, Sir Alfred Mond, reminded me last year that my responsibilities would be very much greater than the responsibilities of those who had occupied the chair before me, because the Society had passed its youth and was entering upon a more serious stage of its life. I felt my responsibility the more, too, because I was by far the most junior of any of your Presidents. There was I, a "miserable rabbit," following on the tail of a most formidable team of ex-Presidents, any one of whom would be a worthy recipient of the Order of Merit. Also my responsibilities were greater as I took over the Presidency in the midst of one of the greatest crises that has ever been known in the industrial history of our country; but I am proud to be able to record that, in spite

of all these handicaps, the Society has during the past year been as prosperous as at any time in its existence. In fact, it has distinguished itself as much as during its youth.

THROUGH WITH FLYING COLOURS.

I should like to refer again to the coal dispute of last year. The Society and the industry with which it is associated came through the anxious period of that crisis with flying colours. There can be no other words for it. Not only did the industry render signal service to the general public by maintaining a constant supply of gas, but it increased very considerably the volume of its business. By what it did, it earned the undying gratitude—or should have earned the undying gratitude—of all classes of the community. Lord Londonderry has already referred to the man in the street as being usually ready to squeal when his gas account is raised. I have to patience with such a man. He could not live without gas, and he is really very grateful to this Society and to the gas industry generally; but for some reason or other when the bill comes in he starts squealing, and forgets altogether how cheaply he is getting his gas. There have even been complaints in the House of Commons; but I am very glad indeed to see that the Government have been sensible enough to disregard these grumbles entirely. The public will never know the anxieties which the industry went through during that period; they will never know the difficulties it had to overcome, the risks it had to undertake, and the losses it had to sustain, in order to maintain the supply of gas. But in spite of all this, the gas industry had increased its number of consumers at the end of 1926 by 250,000 over the previous year, and its output of gas by 10,000 million c.ft.—not a bad record. There is no doubt whatever that householders all over the country are learning to appreciate more than ever the advantages of gas fires, gas cookers, gas geysers, &c. They are coming to value more the convenience, cleanliness, and economy of these appliances.

THE SOCIETY.

All this is largely due to the activities of this Society, which has become a most important organization in the gas industry. The huge expansion of business which has taken place can only have been rendered possible by the valuable experimental and research work constantly being carried out under the auspices of the Society; by the improvements in plant, &c., it is continually promoting; by the helpful information which it is regularly broadcasting to its members; by negotiations as regards legislation, railway rates, contracts, standardization, and so forth; and above all by the splendid feeling of goodwill which it always aims at imbuing throughout the industry and the industry's customers. We have the assistance of the most able men and the best brains throughout the country; and the Society is always ready to give the benefit of its knowledge and experiments to anybody, inside or outside the industry, to whom it can be helpful. As an instance of this, you will notice that the Society has appointed a Sub-Committee to prepare and give evidence before the National Fuel and Power Committee, of which we are proud to see one of our Vice-Presidents (Sir Alfred Mond) is Chairman, and two of our Vice-Presidents are members. Sir David Milne-Watson is one. We are extremely proud that during the past year—and the twenty-first year of the Society's life—Sir David Milne-Watson, one of our most valued colleagues, was justly honoured by his Majesty the King. ["Hear, hear."] The Society has always interested itself, and continues to interest itself, in the question of smoke abatement. Last September a Smoke Abatement Exhibiton was held in Birmingham, and several of our members exhibited. As one who comes from that district known as the Black Country, I welcome anything that can be done to abate the smoke and grime which are to be found there. I know full well the damage which is done to industry and to the health of the worker who has to live under these conditons; and I hope I shall live to see the Black Country become a green country, with the workers living in a healthy atmosphere. This Society is bound to flourish and prosper in the future, just as the gas industry is bound to do. There seems, indeed, small wonder that the gas industry should flourish and prosper, seeing that they get their raw material given to them for practically nothing. [Laughter.]

CHEAP FUEL.—AMALGAMATION THE SOLUTION.

It will be many years—if ever it comes about—before the electrical industry can compete or compare with the gas industry for heating or for cooking, as far as economy is concerned. As a matter of fact, I do not believe they will ever be able so to compare; and for this reason, I do think it is a little unfair—I say it without any hesitancy—for the Government to give the electrical industry such favourable treatment in connection with legislation and finance, as compared with the treatment accorded the gas industry. I can say this the more readily as I am in no way connected with the gas industry, except that I am one of those much maligned individuals, the coalowners, who provide the industry with its life-blood at a very low cost. Lord Londonderry, the Duke of Sutherland, and I have come with our order books; and I have invited my Vice-Chairman, Sir Mark Webster Jenkinson, to help me to take down the orders. I do feel that the time has now arrived when we can look with some confidence to peace in the coal industry—at least, provided they keep the political lime-light off us—for some time to come. It is the duty of the industry to examine itself from top to bottom, so as to see how it can reduce costs in every possible direction, and yet pay its workers the highest practicable wage and ameliorate their social conditions. It must provide the cheapest possible fuel for industry, because in that direction lies our hope of prosperity in the future. I do firmly believe that in amalgamation is to be found our salvation; and by amalgamation I do not only mean the grouping together of collieries in geographical areas, but also amalgamation between owners and employees—amalgamation of ideas and ideals. We must, of course, amalgamate overhead costs, selling organizations, and so forth, wherever we possibly can. I also believe it is most important that we should push ahead in every way in the directions of research and scientific work and plant improvement. As I said this afternoon, the trouble lies in the fact that so many collieries are depleted financially by five years of industrial depression.

PRESIDENT'S THANKS.

Thank you again most sincerely for your kindness to me during my year as President. I shall never forget the good friends I have made. It is a pleasure to me to think that my brother-in-law is going to succeed me. I know that he will be an excellent President in every way. He is interested even more deeply than I am in the coal industry; and I am sure he will do everything in his power to advance your aims and interests. I should like to thank especially my good friend Mr. Gould, who has been Chairman of the Council during my year of office. Upon him I have leaned; and he has never failed me when I wanted help. I do thank Mr. Gould most heartily; and I value his friendship more than I can say. I should like also to pay my tribute of thanks to Mr. Griffith, our Secretary. I trust the Society may increase in strength and vitality in future years, as it has done during the first year of its manhood.

I had hoped to have had the pleasure of welcoming my old friend Sir Philip Cunliffe-Lister, who had consented to dine with us to-night; but unfortunately he has been detained by an important debate in the House of Commons. In his place, I am pleased to welcome his Parliamentary Secretary.

From the Menu Card of Mr. Harold G. Judd (of Messrs. Mann, Judd, Gordon, & Co., C.A.).

Sir Burton Chadwick, M.P., Parliamentary Secretary to the Board of Trade.

Sir BURTON CHADWICK: It is not the easiest thing in life to deputize at a moment's notice for another, on an important occasion of this kind, and when one is apt to be distracted by the momentous happenings of political life; but I am sure you will make allowances for me, as I take the place of Sir Philip Cunliffe-Lister, who was to propose the toast of "The Gas Industry," but who is detained to-night in the House of Commons, to take part in replying to the angry criticisms of those whose sympathies always appear uppermost on behalf of every conceivable people, or the business or interests of every conceivable country, but their own. However, on an occasion of this kind it would not be fitting that I should touch upon this Russian controversy in any party spirit. Indeed, it is not a party matter. It is a matter for the whole British nation and Empire; and I am perfectly sure that the gentlemen gathered at this table to-night will agree that the action of the Government has been the only action possible, if we are to maintain the dignity of our country. There is only one comment I would make on the whole unfortunate situation, and it is that I regret very much that we are using so generally the expression "Russia and the Russians." Russia is a splendid, rich country; and the Russians are a fine people. They are at the moment under the domination of a band of international

Jew adventurers, the majority of whom, I believe, are not Russians at all; and it is as well that we should bear that in mind when we contemplate this great and important question.

PARLIAMENT AND THE INDUSTRY.

Now, as a Board of Trade Minister, I have some claim to speak of the condition of the gas industry—first, because the Board of Trade is, so to speak, the Father Confessor of the gas industry; and, secondly, because the Parliamentary Secretary of the Board of Trade is responsible for a certain amount of "gas" in the House of Commons, inasmuch as it is his duty to move and pilot through the House the many Gas Orders that come-up for discussion from the gas undertakings in the various localities. It is interesting work, although somewhat wearisome for the Board of Trade Minister, for it never comes up until all other business has been disposed of, at 11 o'clock at night, or later; but—and here I speak with some pride of the Department which I represent—it goes through more smoothly than most legislation. If it did not, the effect in dislocation and reduction of orders for machinery and material would very soon make itself felt by the various sections which go to make up the Society of British Gas Industries. You will not expect me, after the speeches that have already been made, to say very much about this toast. You will not desire me to survey the history of the gas industry, nor will you wish me to give a dissertation on its merits; but it will not be out of place if I comment on what strikes me as an outstanding feature in the twenty-one years' life of your Society—namely, the great struggle which has been waged by the gas industry in competition with the rival power electricity, and the stimulus which has been provided in that struggle by your Society. I am very glad to hear it said here that the gas industry, in respect to domestic uses and so forth, has nothing to fear from electricity. Sir Arthur Duckham, who has just returned from America, encourages me by telling me that in some of the biggest cities over there, where the consumption of electricity per head is greater than it is here, the gas consumption also is far heavier than anything of which we have experience in this country.

WORKING FROM BOTH ENDS.

I think you are fortunate in respect that your Society is working for the benefit of the whole industry from both ends; and the industry reacts in a very marked way to the stimulus provided by the members of this Society. We have: (*a*) The producer of gas making plant; (*b*) the consumer of gas making plant and producer of gas; and (*c*) the producer of gas using plant—that is, the industry dependent upon the consumer. Here we see the original producer of the apparatus and the representative of the ultimate consumer linked in one Society, with between them the gas producing industry in the rôle of both consumer and producer. Starting from the producer's end, we see, for example, the immense improvement produced by the vertical retort leading to the more economic production of gas, and an improved demand, both for gas and gas consuming apparatus. Starting from the consumer's end, we see the improvement in the type of gas cooking stoves, gas fires, and appliances for heating in the various industries, thus stimulating the demand and reacting ultimately on the production of gas making apparatus. Was ever an industry so fortunate as the gas making industry in having people represented in the same Society, working for its benefit from both ends? And did ever an industry react more quickly to the stimulus provided by the members of its Society?

VIRTUE OF THE GAS COOKER.

All this has a direct effect on the welfare of the country. I refer to the effect of gas cooking on the health of the people. I cannot pose as an expert on this matter; but I am told that the Ministry of Health attach enormous importance to the use of gas cookers to replace the old-fashioned ranges in the homes—more particularly of the working people. The difference in the quality of the cooking in an ordinary household after the introduction of the gas cooker is tremendous, so they tell me; and what that means in additional efficiency and contentment to the male part of the population, needs no explanation from me. I am proposing the toast of "The Gas Industry;" and I could pursue my commendation of all the benefits that come to us—the British people—from this enlightened and enlightening industry to a point which would lead one to suppose that if only we could produce gas in sufficient quantities our other troubles—such as the Soviet Government, the Chinese Civil War, the Trade Disputes Bill, &c.—would be insignificant. But there is another side to the picture, and that is the bill. I live in a house in Kensington—one of those houses which is, like every other in that part of London, high, large, inconvenient, and cold. It is lit by electric light; I do not know how many tons of coal we burn in our fires; I never see a gas fire, although I believe there are such. But I have been staggered to-day to look at the two bills I have had to pay for gas for the last two quarters, and that reflection causes me to pause in my eulogy of the gas industry, although I am perfectly sure that there are men in this room who, if they saw my house, would be able to point to some economic method of consumption which would give me such gas as I required practically for nothing. It must be remembered that the ordinary man in the street, not knowing of the virtues of the gas industry, meets only those people who bring the gas industry to him—the man who puts the gas into his house, and the man who looks after his meter. The gentleman who intervenes betwen him and the gas industry is known as the plumber—that enemy of social progress and wrecker of homes. [Laughter.] However, I feel greatly honoured to have been charged with this toast.

Sir David Milne-Watson, LL.D., D.L.

Sir DAVID MILNE-WATSON: I rise with great pleasure to respond to the toast which you have just heard proposed by my friend Sir Burton Chadwick. I am very glad to be here to-night with the members of a Society whose Presidential Chair I had the honour to occupy three years ago. I have always regarded the Society as one of the utmost importance to the gas industry of this country. The Society is the complement to the gas industry, and as such we greatly value the work it is doing. On your efficiency and your ability to supply us with plant depends to a great extent our power to meet the demands of the public for gas at the lowest possible price; and therefore we are bound together by a very close bond indeed. Though we may be on the "other side of the counter" with regard to many of these matters, yet I think there is an extremely good feeling existing between the gas industry and the Society of British Gas Industries.

THE BOARD OF TRADE.

The gas industry has passed through a very difficult time during the last twelve months—no more difficult time has occurred within my recollection. We have been face to face with the longest coal stoppage known in Great Britain, and we have emerged triumphant. While we were keeping the country supplied with gas, when it was practically the only means of heating available, and while we were buying regardless of cost vast quantities of coal from all parts of the world, we received the praise and the encomiums of the whole population; but unfortunately when the bills came in the consumers turned round and rent us. They cursed us for being robbers and taking money under false pretences. I do not think they understood the question at all. At all events, reading the papers at the time, one came across the most extraordinary suggestions as to how the gas industry had managed to swell the consumers' bills. But I am pleased to say that the Board of Trade came to our rescue, and the President, Sir Philip Cunliffe-Lister, put a final stop to all this agitation by the careful and well-considered reply he made in the House of Commons. The Board of Trade are really, of course, of the greatest importance to us, because they look after us in every way; and I am sure we are all very glad to know it is contemplated that at an early date—next session, I hope—legislation will be introduced to help the gas industry forward.

MORE FREEDOM FOR THE INDUSTRY.

The gas industry is of even a more responsible age than this Society. You are 22 years old, and we are 115 years; and we think that by this time we ought to be allowed a little more freedom than in the past. We do not want to be entirely free from control; but we do want a fair amount of liberty to develop our own business on our own lines. We think that after 115 years we are entitled to come of age, and to have a certain amount of say in our own affairs. Of course, the electrical industry is a mere baby of 60 years, and it is right that it should be put in the care of nurses and be looked after. The gas industry, however, claims the right to be free from this supervision, at least in its most exaggerated form. We do not want any more coddling, or to be looked after as we were 30 or 40 years ago. The electrical industry is going to change its nurse from the Ministry of Transport to the Board of Trade. I sincerely hope the Board of Trade will see that justice is done between the two of us. What we desire is to be allowed to do our own business in our own way, with a reasonable amount of freedom; and I hope when the Government legislation is introduced we shall find that embodied in the Bill. Reference has been made to the good feeling that exists in the industry. It is quite true that in the gas industry there is an extremely good feeling between the workers and those who direct their operations. Owing to the various co-partnership schemes, there is really a complete understanding between the two sides; and I sincerely hope that what has taken place in the gas industry will spread to the other industries of the country.

LOW-TEMPERATURE CARBONIZATION.

I know the Society of British Gas Industries is doing a great amount of research work, and so is the gas industry. An arrangement has been come to under which low-temperature carbonization is going to be tried on a practical scale. We have heard a great deal to the effect that the gas industry is prejudiced, and will not have anything to do with low-temperature carbonization. The gas industry is naturally not going to adopt a process on a large scale, unless it can be proved to be a commercial success. This is one of the things we hope in the course of a year or two to ascertain; and if we find that it is a commercial success, and can be applied to our industry, I am perfectly certain that we shall rise to the occasion and adopt it. I thank you, gentlemen, for the way in which you have received the toast. We find ourselves completely at home with the Society, with the members of which we are pleased to work.

Sir Arthur Duckham, K.C.B., M.Inst.C.E.

Sir ARTHUR DUCKHAM: I have always been proud to be a member of the Society; but I am prouder than ever to-night, when I see the distinguished guests who have come to our dinner, to hear what we have to say, and to show their interest in our doings. Our guests must feel that the gas industry is doing well. It is doing well. During the coal strike we certainly saved the situation; and as a consequence we are all rather pleased with ourselves. But that success has spurred us on to further efforts. It has shown us fresh worlds to conquer—further services we can render to our country.

THE GUESTS.

I should like our guests to go away with the idea that we gas people are good people, and that the Society has the benefiting of the country at heart. I have often thought that if Lord Londonderry and Mr. Hodges had had the coal trouble put to them to fix up, we should have had a very quick and sound settlement. Two people are a very good number to settle a dispute, though one person is still better. We, as well as the gas industry, regard Sir David Milne-Watson as our leader; and you all know what a magnificent leader he has been. We have also with us Mr. Frank Jones, the Vice-

President of another great London Gas Company, and a power in our industry; and Mr. John Wilkinson, the President of the Institution of Gas Engineers, who is a friend to all of us, and a man we like to do business with. Other gentlemen prominent in the gas industry who have honoured us with their presence include Mr. Douglas H. Helps, Mr. John Terrace, Mr. W. E. Price, and Mr. F. W. Goodenough; and we welcome them all very heartily. [Applause.] I have to couple with the toast of "Our Guests" the name of Mr. Frank Hodges. We know what his work has been. He is one of our most straight-thinking, straight-talking politicians. To-day he has left politics; but I hope it is only for a short time, because I do not believe he can be spared from that sphere. He took a line of his own during the coal strike, and kept to that line; and I personally know how difficult it was for him to do so.

Mr. Frank Hodges, J.P.

Mr. FRANK HODGES: I feel singularly inadequate to reply to the toast so excellently proposed by Sir Arthur Duckham. I know many of those present, having met them at various points of life—principally as antagonists. I and the other guests are now joined with you around the board of personal friendship; and that makes a great deal of difference, when you have to get up and talk. I only regret that I had not an opportunity of hearing the address delivered by your President at your business meeting earlier to-day. It has been brought home to me by gentlemen who were present that that address was a powerful contribution towards the solution of some of the problems that beset the great fuel industries of this country. I trust therefore that the address will have wide publicity. The President's speech to-night was well worth coming to hear; and to be a guest on this occasion, when speeches have been made of a particularly weighty character, is to remember the occasion. We have listened to a speech from Lord Londonderry which was full of ripe wisdom. He and I are very old friends, separated by a curious social system, which apparently inevitably puts him on one side of the table and me on the other. We were friends in the days when I was at the Admiralty, during the all too brief life of the Labour Government. [Applause.] I noted with interest, as you must have done, his contributions, from the very beginning of the tragic stoppage of last year, towards a solution of the problem. I often felt that I should have liked to meet him and see if we could not make a joint contribution towards a settlement of the difficulty; but again there were those barriers which seem to crop up and prevent men of goodwill from doing their best for their fellow countrymen.

PUBLIC CRITICISM.

I have listened with great interest to the speech of Sir David Milne-Watson, and have noted his complaint against the bitter public criticism of the gas industry. It is the same sort of complaint that one hears now about the state of the coal industry. Gentlemen, you cannot have a seven months' stoppage of a vital industry without experiencing the most violent reactions. The gas industry has gone through its period of public criticism; the coal mining industry has still to do so. You cannot suspend production in a vital industry without competitors at your door taking advantage of every day of your difficulty; and therefore you cannot hope to start again at once on a perfectly smooth basis. ["Hear, hear."] I hope I shall not be misunderstood in saying that, starting from the premise that we are all Britishers and love our country, that it is downright moral perversity for a man to say, in his country, that his country is always wrong. There are those who say: "My country, right or wrong." That is imbecility. In the industry with which we are connected we want, it seems to me, the benefit of the coolest minds.

NATIONAL FUEL AND POWER PROBLEMS.

I feel that, in a way, I am rather an interloper here to-night, because I represent the electrical industry. Perhaps I ought to be saying biting things about gas; but that is not the way I understand our national fuel and power problem. I have come to the conclusion that gas and electricity are complementary one to the other; and that all future legislation should be designed on the basis that they must be mutually helpful. In the rôle that I have just assumed, I hope to carry out that guiding principle. These two industries are but the outward manifestations of the great industry of coal. Electricity does not produce gas, it is true; but gas can produce electricity, and ought to produce it where necessary. Both, however, are absolutely dependent upon this vital factor—coal. If that industry does not go well, then these other two will languish. The three combined can make our country economically as good as, if not superior to, any other. I happen to have had the responsibility, I will not say given me, but thrust upon me, of acting as Deputy Chairman of the National Fuel and Power Committee. Our Chairman, Sir Alfred Mond, is a very able man, who possesses the happy faculty of delegating most of the work to other people—as, indeed, seems to me to be the very acme of sound business. On this particular Committee we have representatives of all the phases of the fuel problem; and we who are on it, although there are special and particularized interests to look after, have always to keep before us the imperative problem of how to utilize to the maximum advantage of our countrymen the vast fuel resources with which the nation has been gifted by Providence, and how best to make use in this connection of the technical genius which we know we possess.

THE WORKERS.

In all this we have to remember the workers in the industry; and I am sure you will not deny me the privilege of saying just one word on their behalf. The working class position will not be improved, and cannot be improved, from the public platform or Parliament. It can only be the result of hard, concentrated, co-operative work. During the next decade, therefore, "work" has to be the keynote; and it has to be work in which the technical man feels a common bond with the man who has to operate the plant. We must rise superior to the political conflict which lashes us into endless industrial antagonisms. That is what we must escape, as far as we can. Unfortunately, we cannot escape it altogether. It is the hostility to any break with old ideas that one has to fight every day. We must all be prepared to make some break; and if our inspiration is the well-being of Britain and the British people, we cannot go wrong. We shall then put ourselves where we should be—in the vanguard of the nations of the world.

Mr. Frederick J. Gould.

Mr. F. J. GOULD: I feel honoured that my last official duty as your retiring Chairman of Council should be to propose the health of our new President, His Grace the Duke of Sutherland. His Grace will follow a long line of distinguished Past-Presidents, of whom there are two present this evening. He has served our country well in several capacities. We know him as a great traveller and a statesman. He will bring to this Society, and to the great industry we all serve, the benefit of his experience as a man of affairs, and lead us successfully through our twenty-third year. We all wish him a pleasant and successful term of office.

His Grace the Duke of Sutherland.

The DUKE OF SUTHERLAND: It is a benevolent rule of this Society that its President is not expected to make a speech—a serious speech—until the end of his period of office. This takes a great weight off the mind of anyone honoured to be elected to the Presidency of the Society. I have no doubt, also, that it takes a great weight off the minds of those of you who for the first time come into contact with your new President in his Presidential capacity. For this reason, I will be very brief.

RELATIONS OF CAPITAL AND LABOUR.

In reading your rules, I am especially struck by the one which declares your object to be: "To promote just and honourable practices in the conduct of business as connected with the gas industries, and to suppress malpractices." Although it is not specifically stated, I have no doubt that this rule has a certain reference to a matter all-important in present-day industry—the relations of capital and labour. It is, I think, generally recognized to-day—especially in the gas industry—that nowhere are "just and honourable practices" so necessary as in these relations. We have passed through very difficult times during last year, the chief cause of which was the absence of such relations between capital and labour as would make impossible the dislocation of industry. This is the greatest problem of our time. I hope and pray that we are on the way to solving it. To my mind, the path of peace in industry is co-partnership. The workers ought to have a direct interest in the success of the industry in which they are employed. Certain railway companies have recently set us all a good example, by setting aside a portion of a new share issue for employees of the railway. It was eagerly subscribed; and I am certain it will have a steadying influence on relations in that industry. Nothing is so likely to withstand what I may—with some appropriateness to-night—call the "poison gas" of revolution and sedition, as a working population directly sharing in the profits as well as the wage-fund of industry. I shall be particularly interested to watch, during my Presidency of this Society, the progress of experiments upon these lines, both in the gas industry and elsewhere. Perhaps you will permit me, at the end of my term of office, to report to you more fully on developments in this most important direction of social and industrial harmony.

FURTHER ENTERPRISE.

I am glad to think that, like Lord Londonderry, I believe in the industrial future of this great country; and because I believe in it I am, also like him, endeavouring to dig a hole at considerable cost for the purpose of extending my coalfield in Staffordshire. I hope and believe that this "hole" will ultimately be the means of employing an extra 4000 miners. I assure you that I will do everything in my power to serve the Society.

Flexible Pipe Joint for Air, Water, Gas, and Oil.

The Carlton Pipe Joint Company, Ltd., Fosters Buildings, Sheffield, are the manufacturers of a very efficient flexible joint. It is practically a metal-to-metal joint, and does not depend on rubber or fabric for its flexibility. It consists of a cast-iron annular ring externally coned at either end, grooved around the periphery adjacent to either end, also with a projecting rib round its centre and a drop-forged steel housing made in halves and having a groove to engage with the rib on the annular ring. In the grooves of the latter are rubber rings which ensure gas-tightness of the joint. The ball and socket principle of the "Carlton" joint allows the maximum amount of movement—viz., the free end of a 3-in. pipe 18 ft. long can be raised 3 ft. 6 in. from the ground. The internal components of the joint are so well protected that the pipes can be buried, if desired. It is not necessary to employ skilled labour to lay the pipes.

Association of Statutory Inspectors of Gas Meters.—The annual meeting will take place at the New County Hall, Westminster Bridge, S.E. 1, at 10.30 on June 15. Mr. E. C. Holt, of the Gas Light and Coke Company, will read a paper on "Recent Improvements in Gas Meters."

Scholarship at the Imperial College of Science.—The Directors of Sensible Heat Distillation, Ltd., are offering a scholarship of £250 a year to the Imperial College of Science, South Kensington, for the study of matters concerning the investigation of primary oils from British bituminous coals, under Prof. W. A. Bone, in the Department of Fuel Technology.

NEW SHOWROOMS AT KILBURN.

Gas Light and Coke Company's Policy of Service.

To enable them to give even better facilities and even more efficient service to some 60,000 customers in Kilburn, Hampstead, Willesden, and Child's Hill, and the more satisfactorily to cope with the rapid expansion of their business in those districts, the Directors of the Gas Light and Coke Company decided some time ago to build, and on Wednesday, May 25, they formally opened, a showroom, district office, fitters' depôt, and stores at 307-311, High Road, Kilburn, N.W., to take the place of their former premises in the same thoroughfare. During the past twenty-five years, the consumers in the area to be served by the new depôt have practically doubled, and the demand for gas fittings and appliances has increased more than proportionately to the number of consumers; so that the need for this addition to the Company's means for serving the public had become urgent.

The Company have, of course, long recognized that their service to their consumers does not end with the provision of efficient modern plant for the manufacture and distribution of gas. It is the policy of the Directors to provide, in specially designed or adapted buildings all over the Company's area, local offices and showrooms where supplies of gas and coke can be ordered, and where the latest and most efficient types of apparatus can be inspected and selected. The large number of these offices also makes it possible for the Company's district staff to be within easy reach of consumers' premises for the installation and maintenance of apparatus, and for prompt attention to their needs.

THE LATEST EXAMPLE.

Numerous examples of these specially designed or adapted buildings have already been described; and now one more has to be added to the number. No higher praise can be given to this latest venture than to say that it maintains in every way the high standard already set by the Company for themselves in this regard. Whether from the point of view of the consumer or the staff, nothing that could conduce to comfort has been omitted. The site (formerly occupied by the old Kilburn Brewery) is an extensive one; and everywhere there is a pleasing suggestion of roominess. Through ample window space, the passer-by looks directly into the ground floor showroom, where there is a well-chosen display of fires and cookers—the former arranged in various styles of artistic settings, suitable to the requirements of all classes of consumers. At the back of the showroom are counters for inquiries and the transaction of business.

Proceeding to the first floor, one finds another showroom divided-up into several sections. One of these is devoted to various types of gas cooking ranges; another to domestic coke boilers; and a third to gas-heated appliances for providing hot water—baths being fitted with different types of geysers. Striking examples can be seen of the replacement of the old-fashioned coal range by either a modern gas cooker and a coke boiler, or a gas cooker and gas heated circulator and storage combined, in a tiled recess.

Another useful object-lesson is provided by "built-in" gas fires provided with economy flues. These fires are with mantel-shelf and hearth, all in one, ready for fixing by the builder. They are fitted with hinges, so that they can be swung out to enable prospective buyers to see the method of attaching them to the flue. Some of the special flue blocks shown are of the "Nautilus" pattern, while others are of "Novocrete." Certain other types of gas fires are also set out on the first floor; and there are a gas-heated refrigerator, a similarly operated drying cabinet, gas wash coppers and irons, and numerous other domestic and industrial labour-saving devices.

Mention must not be omitted of the large selection of up-to-date artistic lighting fittings—including ventilating lamps—all operated by Sugg's distant control or pneumatic switches, placed in convenient positions. A comfortable lecture-room has been provided on the first floor, where the housewives of the district will have frequent opportunities of attending practical lectures and demonstrations in economical gas cookery by members of the Company's staff of expert women advisers on domestic economy. Also leading from the showrooms is the inspectors' office, from which access is gained to the foremen's office. On the ground floor are arranged well-equipped stores, fitters' lobbies, mess-rooms, and other conveniences for the employees.

The Architect responsible for the design, decoration, and furnishing of the showrooms was Mr. W. J. Tapper, A.R.A., Prés. R.I.B.A.; while the offices and stores were designed by Messrs. Whinney and Austen Hall. The building contract was carried out by Messrs. Dove Bros., of Islington.

OPENING CEREMONY.

The opening ceremony was performed, after tea in the inspectors' office, by Lieut.-Col. the Hon. G. F. Stanley, C.M.G., M.P. (Parliamentary Secretary to the Ministry of Pensions), who was accompanied by Lady Beatrix Stanley, C.B.E., and supported by members of the Willesden Urban District Council and the Hampstead Chamber of Commerce.

The visitors were welcomed by the Governor of the Company (Sir David Milne-Watson, LL.D., D.L.) and Lady Milne-Watson, and several members of the Court of Directors. With the Directors there were the Assistant General Manager (Mr. R. W. Foot), the Secretary (Mr. W. L. Galbraith), the Chief Engineer (Mr. T. Hardie), the Accountant (Mr. H. E. Ibbs), the Rental Superintendent (Mr. L. M. Simmons), the Chief Officer of Stores (Mr. W. McDowall), and the Controller of Gas Sales (Mr. F. W. Goodenough) and the Deputy Controller (Mr. Stephen Lacey), together with the Senior Officers of the Gas Sales Department, to which is entrusted the task of giving good service to the 1,200,000 consumers in the Company's area. That Department is therefore responsible for the administration of the new centre, which will be under the supervision of Mr. E. G. Merry, who has been in charge of the former Kilburn office for the past fifteen years.

GAS MUST BE SHOWN TO THE BEST ADVANTAGE.

Sir DAVID MILNE-WATSON: Ladies and gentlemen,—This afternoon we have the pleasure of having with us Lieut.-Col. Stanley and Lady Beatrix Stanley, who have come to open our new premises. It is very kind indeed of them, in the midst of their duties, at a busy season—and especially of Lieut.-Col. Stanley, who is not only Member for this Division, but holds a position in the Ministry—to spare the time to come here and do us this honour. I do not intend to inflict a long speech upon you; but there are just one or two things I should like to say. As most of you are aware, the Company for many years had premises on the other side of the road; but the increase in our business has rendered them quite inadequate—particularly with regard to the accommodation for the staff. Therefore we have acquired these new premises, and have fitted them up in the most modern style. We are now in close competition with our electrical friends—some of whom I am delighted to see here to-day—but we have no intention of being beaten. We are not "down and out," as some people would have you believe; but if we are to progress as we can progress, it is essential for us to demonstrate the use of gas by the most up-to-date methods. So we show in these premises all the latest gas-consuming devices and apparatus which lighten the work of the housewife and make life more agreeable. The Company, of course, supply an enormous district; and this particular office serves about 60,000 families—the population of quite a large town. I am glad to see here this afternoon representatives of all the Local Authorities of this district, who have come to grace the proceedings with their presence. As I have already said, the need for these premises is not only to show gas as it ought to be used, but to provide suitable accommodation for our staff. You who are having tea in this room will see that it is a very pleasant place in which to have to pass the day, even at work. ["Hear, hear."] When I see the sun shining into the room through the green trees outside the windows, it makes me feel quite envious, for at Horseferry Road things are not like this. However, the Company believe that, if one is going to have work well done, the staff must be housed in a proper manner. We have well-arranged stores outside, which will add to the efficiency of the depôt. As we have with us representatives of Local Authorities who are interested in electricity, I am sure they will not mind me saying that we regard them as friendly rivals. We realize that there is room for both. We are each of us engaged in endeavouring to make the air cleaner and sweeter; and in that way we are both rendering excellent service to the public. We have by our efforts largely eliminated fogs—or, at any rate, we have rendered them much less murky and objectionable—and in this way we have to a certain extent destroyed our own business. Years ago, what the Gas Light and Coke Company loved best of all was to see a good thick fog, which led to a largely increased consumption of gas. However, there is consolation in the thought that we are still left with cold winds. No amount of effort on the part of gas and electricity will alter the fact that cold weather will come; and it is the cold weather which gives us our greatest increase of business, now that fogs have become so much less severe. Therefore we take a cheerful view of the future.

A CONVERT.

Lieut.-Col. the Hon. G. F. STANLEY: Sir David Milne-Watson,—I am sorry in my opening sentence to have to differ with you on one point. You said it was very good of me to leave my duties and come here this afternoon. There is nobody, I am sure, in this world who is more willing than I am to be idle; and I am delighted to leave my work for a time, and come to open these beautiful premises. It is pleasant, also, because I am able to unburden my soul on one or two points. The first is that, although I knew that the Gas Light and Coke Company were carrying on a very large business, I was not aware of the enormous ramifications of this business, or of the tremendous tract of country which they cover. Operating, as the Company do, over an area of 265 square miles, extending from Windsor Great Park to Epping Forest, one must realize the gigantic work they are accomplishing, and the benefit which they confer upon the general public. And now, Sir, I should like to unburden myself in another direction. I will frankly confess that I have been somewhat hostile, if I may say so, to the use of gas. It may be that I had recollections of my early youth, when I used to spend a good deal of the winter in London. Gas in those days was certainly not what it is now; and I did not appreciate it very much. But now I am bound to say that my opinion has altered; and it has altered for this reason: Whatever I may do outside—however I may disobey orders elsewhere—in my own home I must

obey. I was told the other day that I was going to have a gas fire in my room; and the gas fire is there. On one of those cold days which we so often have during a pleasant spring in England, I was in that room, and should have hesitated to light a coal fire; but the gas fire was there, and I lit it, to my great comfort and enjoyment. Therefore I am distinctly a convert in that direction.

It has been a great pleasure to Lady Beatrix and myself to come here and see these magnificent showrooms, which have been designed to let the public see what the gas industry can do; and it only remains for me to declare the showrooms open, and to wish them every prosperity in the future. [Applause.]

Subsequently the large number of guests made a tour of inspection of the showrooms and stores.

GAS PREVENTS AND HELPS TO CURE ILLNESS.

Demonstration of its Use in Hospitals.

That the use of gas prevents illness by abolishing the smoke pall over our cities and towns is becoming more recognized, but the public are, generally speaking, not aware of the remarkable extent to which this ideal fuel is being applied to hospital and institution work, thereby helping to cure illness. However, demonstrations such as that staged by the Gas Light and Coke Company and the British Commercial Gas Association at the Hospitals and Institutions Exhibition and Conference which was held on May 26, 27, and 28 at the Royal Horticultural Hall, Westminster, will enable the public to appreciate how well they are served by gas.

GAS EQUIPMENT IN HOSPITALS.

Not long ago we described the gas cooking equipment recently installed in the University College Hospital (see "GAS SALESMAN" for July 28, 1926, p. 169); and on the stand of the "B.C.G.A." at the Hospitals Exhibition there were copies of No. 132, "A Thousand-and-One Uses for Gas," in which an account is given of the very complete gas installation in the Westminster Hospital. Without going into any detail regarding this, it may be mentioned that there are 173 fires, 4 radiators, 4 condensing stoves, 19 cookers, a griller, a hot closet, 3 hotplates, a demonstrating table with recessed hotplates, 50 boiling rings (used for sterilizing instruments, &c.), 10 sterilizing burners (in operating theatres and in out-patients' consulting rooms), and a carving table with covers and bain marie—all consuming gas.

The exhibits on the stand of the "B.C.G.A." included a Spencer-Bonecourt gas-fired boiler, a gas-heated sterilizer for dressings, by Manlove, Alliott & Co., Ltd., a gas-fired incinerator by the same firm, a Davis "Medusa" fire, and one of Richmond's "Bungalow" cookers.

EXHIBIT OF THE GAS LIGHT AND COKE COMPANY.

The exhibit of this Company was divided into two sections—one representing a children's ward in a hospital; the other showing compact and efficient kitchen equipment. In the former, which was decorated most attractively, there were a gas fire, a gas-heated sterilizer, and a reading lamp of pleasing design. The kitchen recess in the other half of the stand contained a cooker, a fire, and a remarkably neat and unobtrusive gas incinerator by the Davis Gas Stove Company, Ltd. The latter domestic appliance, known as the "Burn-All," has been specially designed for placing on the top of a kitchen range. Also in the kitchen section of the stand were demonstrated a Potterton gas circulator, an "Electrolux" refrigerator, and an "Eco-Dry" cabinet for the quick drying of clothes. The principle on which the "Eco-Dry" works is such as to permit heated fresh air to circulate freely among the articles to be dried. This is important, for with a continual current of air it is impossible to shrink or harden such articles as flannels, woollens, blankets, &c., during the drying period. By regulation of the supply of gas, the wettest articles can be quickly dried, or the cabinet can be used purely as an airer.

The lighting of the stand, which was pneumatically controlled, was most effective.

During the conference Mr. W. H. Becket, the Deputy Manager of the Special Service Section of the Gas Light and Coke Company, lectured on the uses of gas in hospital and institution work.

"ON THE SPRING OF THE AIR."

The study of the gas laws is of peculiar interest to scientists in this country not only by reason of their intrinsic importance, but also owing to the distinguished part played by our earlier scientists in the discovery of the laws and in the progress of eudiometry. In the fourth lecture on "High Pressure Gas Research" given at the Imperial College of Science and Technology by Mr. D. T. A. Townend, Ph.D., an interesting account was given of the early history of the measurement of compressibility and of the work of more modern investigators.

Of the validity of Boyle's law when applied to high pressures there has always been some doubt. Boyle himself seems to have had misgivings; and though he inclined to believe that variations found by him might be due to unavoidable errors in his experiments, yet he refrained, with commendable prudence, from claiming universality for the law:

> Now although we deny not, but that . . . some particulars do not so exactly answer to what our . . . hypothesis might perchance invite the reader to expect, yet the variations are not so considerable but that they may probably enough be ascribed to some such want of exactness as in such nice experiments is scarce avoidable.

For more than a century and a half the law remained unchallenged as a practical means of interpreting the results of quantitative gas experiments, and together with Dalton's atomic theory and Avogadro's hypothesis may claim to have laid the foundations of modern chemical theory.

From the outset the difficulty experienced in rigorously testing the law was due to the lack of a convenient and reliable method of measuring high pressures. All the earlier workers used open mercury columns to balance the unknown pressure, and calculated the magnitude of the pressure from the height at which the mercury stood in the column. The expedients used for accommodating a column sufficiently high, and of measuring the mercury level, were many and ingenious. Thus Boyle, in a descriptive passage:

> That the tube being so tall that we could not conveniently make use of it in a chamber, we were fain to use it on a pair of stairs, which were not very lightsome, the tube being for preservation's sake by strings . . . suspended.

When early in the nineteenth century that brilliant constellation of French chemists turned their attention to the subject, their methods were both radical and enterprising. Columns nearly 1000 ft. high were constructed, sometimes in the open and sometimes in the shafts of coal mines; and the intrepid investigators either climbed trees or were lowered in baskets, and on several occasions nearly lost their lives in the process. The results obtained were of such importance as fully to justify the expense and danger of the investigations. In particular the work of Amagat stands out as one of the most admirable pieces of quantitative research of the nineteenth century; and testimony to the accuracy of his results is given by the fact that to-day, more than forty years later, his figures for compressibility are frequently the most reliable available.

The lecturer dealt at considerable length with the work of Regnault, Natterer, Dulong and Arago, and Cailletet. With the advent of the *piston libre* type of manometer, many of the earlier difficulties connected with the measurement of pressure disappeared, and pressures hitherto unattainable could be employed. In his later work, for example, Amagat succeeded in reaching 3000 atmospheres. A description was given of the methods employed in more recent determinations of isotherms at Berlin and Leyden, and numerous slides illustrating the apparatus used were shown.

The importance of compressibility measurements in relation to high-pressure work was emphasized, and examples were given of the nature of the corrections to pressure measurements necessitated by the departure of gases from Boyle's law and Dalton's law in a number of well-known instances.

The fifth lecture of the series will be given at the Imperial College of Science and Technology on Friday, June 3, by Prof. W. A. Bone, F.R.S.

WESTERN JUNIOR GAS ASSOCIATION.

A Meeting on May 25 took the form of a visit to the works of Messrs. Willey & Co., Exeter. About forty members were entertained at lunch by the Directors of the firm—Mr. STEPHEN SIMPSON occupying the chair.

The CHAIRMAN extended a hearty welcome. He remarked that at the firm's works the members would see the manufacture of a great variety of gas appliances, and would be able to note the care and accuracy employed.

Mr. C. BATEMAN (President, Bath) proposed, and Mr. A. MARSDEN (Junior Vice-President, Bristol) seconded, a vote of thanks to the firm for their hospitality.

The party were afterwards conveyed to the works, round which they were accompanied by Messrs. T. Glanfield, F. Blanchford, and Thornton Willey (Directors), G. Lane (Secretary), R. J. Row, and other members of the staff.

The firm, which was established in 1868, employs 1350 men. A wide variety of gas appliances are made. In the meter section alone ninety different patterns are turned out.

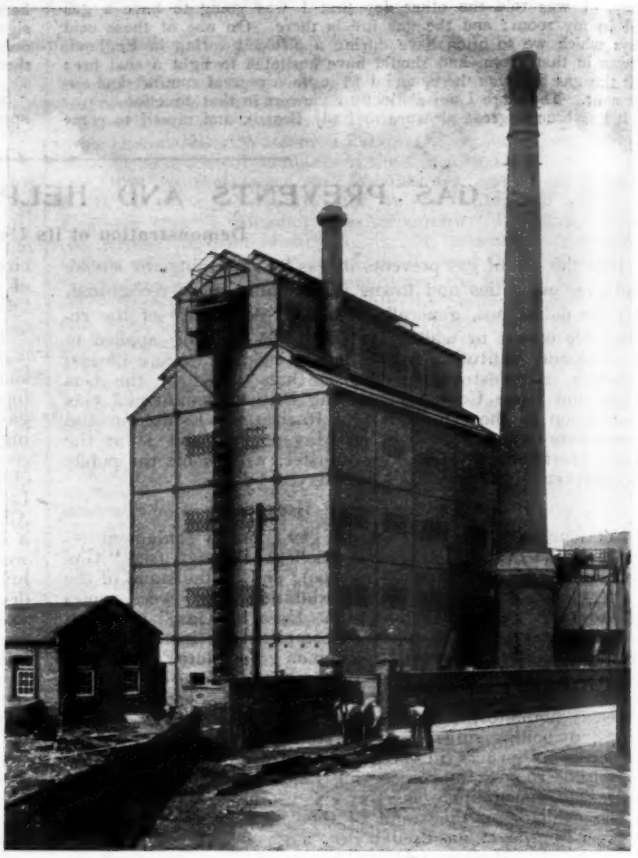
GLOVER-WEST RETORTS AT ELLESMERE PORT.

Extracted from "West's Gas."

The Glover-West vertical retort developed from the original St. Helens section in 1908 to the retort 40 in. long on the major axis of the elliptical section at the top, installed at Oldbury and Dudley in 1923. An installation at Ellesmere Port marks a further step in the direction of a still larger retort—maintaining the elliptical cross-section and other features.

The plant has now been in operation for some three months, and no trouble whatever has been experienced. Several varieties of coal from the Lancashire, Welsh, and Durham coalfields have been carbonized and found to pass through the retorts regularly and easily. During most of the time the new retorts have been in operation they have met the full demand of the district, so that tests of short duration only have been possible. These indicate that, with good local coals, a production of 100,000 c.ft. of gas of 450 B.Th.U. is within the capabilities of each retort. The make per ton showed that the steam was effective.

The new retorts were built as an extension of an existing installation of vertical retorts. The Glover-West retorts are built upon a mass concrete foundation, and consist of a bench of four 50-in. retorts 25 ft. long in units of two, arranged in line with, and as near as practicable to, the existing vertical installation; the retort house being extended, and thus forming one house for both installations. The installation is complete with coal and coke plant, coke-screening plant, and waste-heat recovery plant. The last-named consists of a Spencer-Bonecourt waste-heat boiler capable of evaporating 3100 lbs. of water per hour, complete with superheater, duplicate feed pumps, and feed-water heater, arranged alongside the existing vertical installation; and it takes the waste gases from either or both installations. The induced-draught fan is driven by a steam turbine; the heat in the exhaust steam from the turbine being recovered in a feed-water heater.



The district served by the gas undertaking of the Urban District Council of Ellesmere Port covers a large area to the south of the estuary of the River Mersey, at the entrance of the Manchester Ship Canal. Its population is growing rapidly; and this is reflected in the expansion of the demand for gas, which is shown by the following figures:

Year.	Volume of Gas Sold.
1515	29,300,000 c.ft.
1925	65,000,000 ,,
1927	125,000,000 ,,

THE "GLOW-WORM" OPEN COKE FIRE.

Since this fire was shown at the Smoke Abatement Exhibition at Birmingham in September, 1926, it has been greatly improved; and the makers are now satisfied that it is practically foolproof, and should give long service without expensive renewals of parts. The radiant surface is nearly vertical, and combustion is from front to back; the hot gases then passing downward into the ash pan, carrying the dust into the pan, and passing up the flue at the back.

In an ordinary grate the air for combustion is moving vertically, preventing the ash falling. This causes the formation of clinker, and the fire is difficult to manage. In addition to this, in an ordinary grate new fuel "blanks-out" the radiant surface.

In the "Glow-Worm" coke fire there is a space at the top for storage of fuel, and the addition of new fuel does not affect the radiant heat given off. The fire is fitted with a gas igniter; and it is claimed that it is very little more trouble than a gas fire to manage. There is no need to re-lay the fire, nor need wood and paper be used for lighting. On the other hand, the fire can readily be lit in the ordinary way.

It is common to obtain a rating of 27-28 kilo calories from this fire, which is designed so that it may be readily fitted into an existing grate, or a tiled slab or sheet of metal may be used to close-in the existing grate, giving the fire an excellent appearance. Other models are being produced, and will shortly be ready for the market.

The hearth model, somewhat similar in appearance to the "Sunbeam" type of gas fire, should be exceedingly popular. This model needs no fixing, and is readily portable. It can be supplied with or without dogs; and a trivet can be provided to swing-over the top of the fire for heating a kettle. In this model there is no hopper space, but the fire will work without attention for two to four hours, according to the rate of combustion.

The built-in model is intended primarily for new houses. All the working portions of the fire are behind the tiled slab surround. This model is to be provided with a back boiler where necessary; and the design, which keeps the fuel from actual contact with the cold water jacketed surface of the boiler, ensures high efficiency. A hopper space is provided, which, fully charged with suitable fuel, provides an eight to ten hour run without attention.

Ease of control, lack of dust, and economy characterize these fires, in which coke of all natures can be readily used. It is suggested that this apparatus let out on hire-purchase terms, or perhaps in some cases on simple hire, will do much to promote a steady local demand for coke.

The makers are pleased to quote special prices for demonstration models of these fires; and they urge that tests should be made before the heating season, so that suitable arrangements may ensure satisfactory deliveries when the cold weather comes.

"Vita" Glass.

It frequently happens that new inventions are introduced with glorious commendation, but after experience and investigation this is discounted. The Education Committee of the London County Council have had under consideration the question of installing this glass in some of the elementary schools; and they have heard the views of Dr. Stella Churchill on the subject, as well as those of officers of the Council. The suggestion was that the substitution of "Vita" glass for ordinary glass in schools would result in much healthier conditions, as it was suggested that it would allow more ultra-violet radiation to pass than does ordinary glass. The Committee were, however, advised that the transmission of ultra-violet rays through the atmosphere is much impeded by the presence of moisture, soot, and dust, and that it is only from about the middle of May to the middle of September that sufficient ultra-violet radiation penetrates the London atmosphere to make its consideration worth while. However superior "Vita" glass may be to ordinary glass, open windows are far superior to either. Furthermore, the glass of all windows in London rapidly becomes coated with a layer of fine dust, which must obstruct the passage of ultra-violet rays. "Vita" glass is, the Committee understand, considerably more expensive than the ordinary clear sheet glass, which affects initial cost and maintenance.

MIDLAND ASSOCIATION OF GAS ENGINEERS AND MANAGERS.

Inspection of the Manufacture of Iron and Gas, and of the "Metallisation" Process, at Dudley.

The gas engineer of to-day is an energetic man, and is no longer content that "Round the Gas-Works" should describe a meeting. There was ample evidence of the new spirit at the meeting of the Midland Association of Gas Engineers and Managers on Thursday, May 26, which was held at Dudley. During the morning the Netherton Ironworks of Messrs. N. Hingley & Sons, Ltd., were visited. In the afternoon the works of the Town of Dudley Gas Light Company—of which the President of the Association, Mr. Fras. C. Briggs, is Engineer and Manager—were inspected; and finally the members were able to see the "Schoop" process of metal spraying carried out at the works of Messrs. Metallisation, Ltd. Such a comprehensive meeting necessarily implies efficient organization if everything goes through smoothly, as it did last Thursday; and the success which marked the occasion reflects great credit on all concerned with the arrangements.

A Huge Concern.

The visit to the Netherton Ironworks had been anticipated with pleasure; and in this case the time-worn idea that anticipation is greater than realization was disproved. The obviously keen interest aroused was due, it is thought, to three factors. First of all there is, and always has been, in an ironworks an appeal to man's dramatic sense. Apart entirely from the heat content of molten iron, there are few who can remain cold at the spectacular processes carried on in such a works. Then, on this occasion, the stirring of the emotions constituted only part—and that the minor part—of the general appeal, for the remarkable efficiency of the Netherton Ironworks aroused intelligent appreciation. Finally, man, being in size at any rate an insignificant creature, is attracted by large-scale operations; and there is nothing puny about some of the products which were seen in course of manufacture at Netherton. For example, one item was a 7-ton mooring anchor destined for Rangoon—the last of an order for 27.

The firm manufacture cables and anchors for the White Star and the Cunard Lines; and it is interesting that the anchors for the "Majestic" and the "Olympic" were made by Messrs. Hingley, who at present are manufacturing a cable for one of H.M. ships. The magnitude and scope of the firm's work will be appreciated when it is mentioned that it incorporates coal raising; iron ore mining; the conversion of the pig into wrought iron, by puddling; of the puddled iron into squares, flats, and strips, and sections generally; conversion of the finished rolled iron into chains and cables, forgings and stampings; forging of steel ingots for general engineering purposes; and pressed steel work.

The explanations of Mr. E. C. Lowndes, the General Manager, and of Mr. A. E. Osborne, the Manager of the Cable Department, added greatly to the enjoyment of the inspection. Mr. Lowndes drew attention to the necessity of using only the best wrought iron in the manufacture of gas tube—a fact which the gas industry now fully realize. The recent specification of the Institution of Gas Engineers emphasizes this. The gas tubing made by Messrs. Hingley is composed solely of puddled wrought iron—"best Staffordshire"—having a homogeneously welded internal structure not possessed by ingot iron.

Luncheon.

Following the inspection of the Netherton Ironworks, the visitors were conveyed to the "Dudley Arms" Hotel, where they were the guests at luncheon of the Chairman and Directors of the Town of Dudley Gas Light Company. Mr. W. W. Skidmore-Westwood, the Chairman, presided; and other Directors present were Messrs. J. Hipkins, E. C. Theedam, J.P., and W. H. Thompson. Many of Dudley's public men were there to welcome the Association.

After the Loyal Toast had been honoured, at the call of the Chairman,

Mr. J. Paterson, M.A., proposed the toast of "Dudley Town and Industry." He remarked that the history of Dudley, which was the largest town in Worcestershire, went back to the times of the Saxons, who established a stronghold there in the eighth century. The history of Dudley Castle was in effect the history of Dudley itself; but as the castle had gradually passed into what was now a beautiful ruin, the town of Dudley had waxed stronger, and could at present boast of nearly 60,000 inhabitants. It occupied an important place in the country, because of its many and varied industrial activities, an example of which they had seen that day at the Netherton Ironworks of Messrs. Hingley. Having instanced some of Dudley's trades, Mr. Paterson concluded by coupling with the toast the name of Alderman W. Bradford, J.P., the Mayor.

The Mayor, in the course of his reply, stated that the Corporation of Dudley were neglecting no opportunity of enhancing the industrial prosperity of the town. He congratulated the Gas Company on having such a capable Engineer in Mr. Briggs, under whose supervision the works had been brought to a high state of efficiency, providing a service very satisfactory to the Corporation, who invariably received every courtesy and attention from the Company.

It was intended that Mr. C. E. Lloyd, M.P., should also reply to the toast, but at the last moment his parliamentary duties prevented his being present at the luncheon.

A Company Equipped for Progress.

Councillor G. Stevenson (Engineer to the Long Eaton Gas Company), in proposing "The Town of Dudley Gas Light Company," on behalf of the Association thanked the Chairman and Directors of the Company for their hospitality. As the Company was founded in 1820, it must be among the oldest provincial gas undertakings; and it was highly satisfactory to note that it was progressing so favourably. The sale of gas was growing rapidly; the present figure showed an increase of 50 p.ct. over that for 1914. There was, of course, good reason why this development should continue, for the Company had a finely equipped works controlled by a businesslike and broadminded Board of Directors guided by an exceptional Engineer—a man possessed of both technical and commercial ability. The service given by the Company was excellent, and the price of their product was reasonable; and he forecasted for them a brilliant future. He was glad to hear that the relationship between the Company and the Municipality was so cordial. Of course, they were happily placed at Dudley, for both gas and electricity were privately controlled, and the Corporation acted as a neutral arbiter. It would be well for the country if the Government adopted a similar attitude, for there was no doubt that industry progressed better without Government interference. He was also glad to hear that the relationship between employers and employed in the Company was so harmonious; and he trusted that a co-partnership scheme would soon be instituted. He coupled with the toast the name of Mr. Skidmore-Westwood, who was Chairman not only of the Dudley Gas Light Company, but also of a firm of constructional engineers honoured throughout the gas industry.

Need for Brilliant Men.

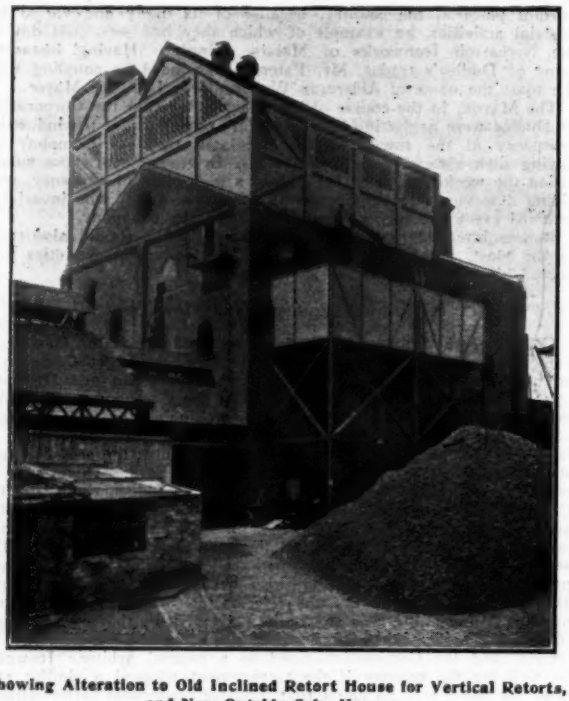
The Chairman, replying to the toast, welcomed the Association to Dudley. Though Dudley was one of the oldest gas undertakings in the Midlands, he said, this was the first time they had been honoured by such a visit. They were an old Company, but they were very

much alive, and were successful. During the past sixty years—with the exception of one year—they had paid the statutory dividend without fail, and had asked for no special privileges. A gas undertaking, he continued, was a good trade barometer; it indicated the prosperity of a town and the growth in population. In their case for example, in 1870 the make was 71 million c.ft.; last year it was over 309 millions. In 1900 the consumers numbered 2830; last year the figure was 10,453. After quoting a few excerpts from the records of the Company, Mr. Skidmore-Westwood said he was proud of the gas industry and of the men who worked for it and had been responsible for its development from the former crude systems to the modern scientific methods. The future of the industry was to a certain extent in their hands. And in thinking of the future, he would ask them whether they were not inclined to be too parochial in their outlook. There were about 1100 gas undertakings in England and Wales; but could they honestly say that more than fifty of these were worth the consideration of really brilliant men? Brilliant men were needed in the gas industry if it was to prosper as it should, and could, do; and thought should be given to this.

Mr. W. H. THOMPSON (Director of the Company), in proposing "The Midland Association of Gas Engineers and Managers," congratulated them upon their President. He had worked with him, and he knew how able Mr. Briggs was; and the Company congratulated themselves on having such a brilliant Engineer. The Association would attain its jubilee next year; and it was good to think that Mr. Briggs would still be President, for in 1877 the Gas Engineer at Dudley, Mr. Thomas Collett, was one of the five who met at Birmingham with the idea of forming an Association in the Midlands.

HELPING THE COUNTRY.

Mr. BRIGGS, replying, thanked the public men of the district present at their meeting who had given so much of their time to welcome the Association. Others who had looked forward to being with them, including Mr. C. E. Lloyd, M.P., but who had been unable to be present, had expressed their regret. Having spoken of the happy relationship between the Gas Company and the Electricity Company which operated in their area—for, in spite of being rivals in business, they were on the best of terms—Mr. Briggs thanked the Board of his Company for taking up the idea of the visit with such enthusiasm. The aims of the gas industry, he continued, were high. For a hundred years and more they had been studying the best methods of utilizing the country's virgin wealth—coal. At long last it was being generally recognized that the economical use of coal was the foundation of the country's prosperity and progress. Various institutions had sprung up to tackle the problem; but the gas industry had for long carried on their good work, conserving the resources of coal by subjecting it to high-temperature carbonization, which was the most economical process known. Much had been heard of low-temperature carbonization. If this proved commercially successful, then the gas-works would be the ones to run the process. Then, of



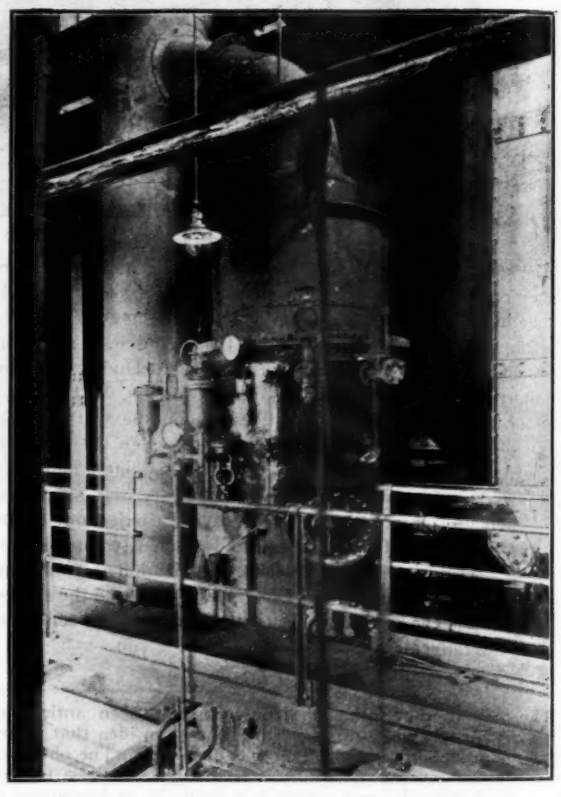
Showing Alteration to Old Inclined Retort House for Vertical Retorts, and New Outside Coke Hoppers.

course, there was electricity. They wished success to their competitor; but there was no doubt that gas would remain. The results he had achieved in Dudley had been due to the help he had had ever since he came there. The Board was one such as any man would be proud to serve; and any scheme which he put forward was considered by them critically but sympathetically. The staff were loyal and enthusiastic; and though it was difficult to single-out names, he would like to mention Mr. W. C. Collins, the Senior Assistant Engineer, and Mr. S. W. Simmons, the District Superintendent. Finally, he thanked all the members of the Association for their support during his period of office, and the firms of Messrs. N. Hingley & Sons, Ltd., and Messrs. Metallisation, Ltd., for doing so much to make the visit such a success.

After the luncheon the visitors were conveyed to the Dudley Gas-Works, where everything possible had been done to make the inspection enjoyable and profitable. Before describing the works, we will give a short outline of the

EARLY DAYS OF THE COMPANY.

The Town of Dudley Gaslight Company—the oldest public utility in Dudley—was established under statutory powers in 1820. In 1853 it was dissolved, and re-incorporated by the Dudley Gas Act, 1853. Further powers were obtained in 1881, and the Gas Regulation Act was adopted in 1924. The Company is a maximum price and dividend concern; the maximum price allowed being 1s. 6d. per therm, and the declared calorific value 450 B.Th.U. per c.ft.



Vertical Retort Plant. One of the Waste-Heat Boilers.

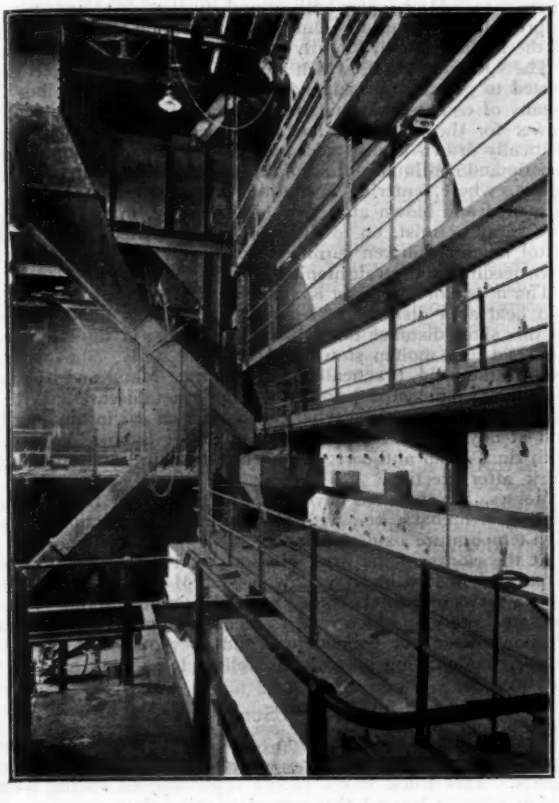
In its earlier years the Company was controlled by a Committee of Management, under whose control the works were carried on under contract by various engineers. It was not until 1863 that the Directors resumed full management of the undertaking.

The area of the Borough of Dudley, including Castle Hill, is approximately 3615 acres; and the Company's area of supply practically coincides with this. The population at the last Parliamentary census (1921) was 55,900. The actual works covers about 4 acres. In 1860 the make of gas was 44 million c.ft.; in 1926 it was nearly 310 millions. The district is essentially an industrial one, with a large working-class population. In 1925 the domestic load amounted to 75 p.ct.—30·5 p.ct. ordinary; 44·5 p.ct. prepayment—and the industrial load was 21·3 p.ct. of the total.

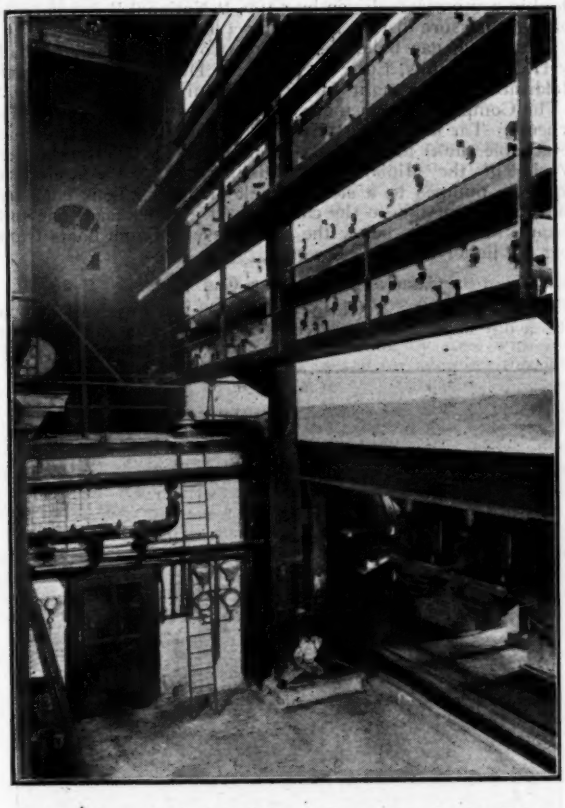
THE WORKS: CARBONIZING PLANT.

Coming now to a brief description of certain features of the works, we will outline first the method of coal handling. The coal is received at public railway sidings, and is transported to the works by "Sentinel" steam wagons. It is received outside the retort house in a small hopper, passes when necessary through a belt-driven two-roll crusher, and is elevated to the retort house hoppers by a West lip-bucket conveyor-elevator of a maximum capacity of 35 tons per hour running at 40 ft. per min. Mr. Briggs has an excellent automatic oiling device for this conveyor, with the result that its running is practically noiseless. The retort house hoppers are of 48 hours' capacity. Interest was shown in the distance-controlled gas lighting of the retort house.

The carbonizing plant comprises verticals and inclines—the latter being stand-by plant. Originally there were six settings of inclined retorts, but four of these have been replaced by a Glover-West installation. The latter consists of two settings each of eight retorts 10 in. by 40 in. at the top and 25 ft. long,



Vertical Retort Plant, Furnace Side.



Vertical Plant. Back of Settings and Entrance to Engine House.

with bottom cleaning chambers, controlled in pairs. The retorts are of a nominal capacity of 5 tons per day on straight coal gas, and about 4¼ tons actual when steaming. Each has an actual average output capacity of 85,000 c.ft. a day. There is one open-front producer to four retorts.

The remaining inclines comprise two settings each of seven Ω-section retorts heated by Drake's regenerator tube furnaces. The capacity is 9 tons of coal per setting per day.

Coke from the verticals is transported by lip-bucket conveyor to the top of the retort house, whence it falls through chutes either to elevated hoppers of 48 hours' capacity, outside the retort house, arranged for the direct filling of road vehicles, or to a small hopper in the retort house, from which the producers are fed.

Waste-Heat Boilers.

Each vertical retort setting has a Galloway vertical waste-heat natural-draught boiler, fitted with superheater, capable of evaporating 1300 lbs. of water per hour from 60° Fahr. and working at a pressure of 120 lbs. per sq. in. When the plant is fully working, the two boilers generate sufficient steam for the vertical plant, and surplus for the works generally. "Thermofeed" control appliances are installed.

The members were interested in an automatic steam interchange arrangement between the plant and the works generally. If the plant steam reaches any predetermined pressure below 120 lbs. per sq. in., surplus steam passes to the works. If, on the other hand, the plant steam pressure falls below works pressure (80 lbs. maximum, 60 lbs. minimum), steam passes from works to plant.

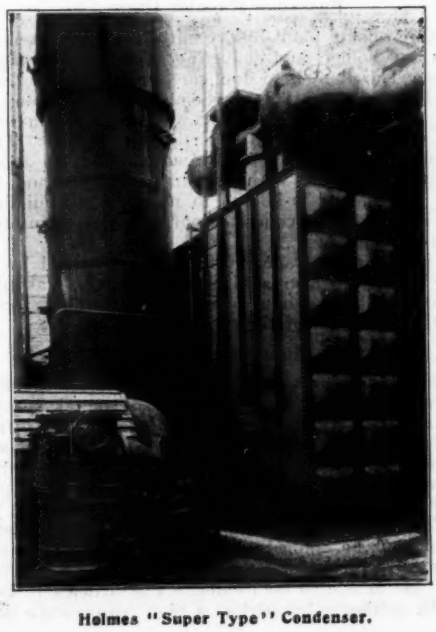
Holmes "Super-Type" Condenser.

The original vertical atmospheric condenser has been superseded by a Holmes horizontal water-tube condenser of 1¼ million c.ft. a day capacity. This is known as the "Super-Type" condenser, and it merits a brief description. The disposition of the inclined tubes is such as to ensure easy passage for the water, though at high velocity, thus reducing the tendency to form hot water pockets or films, and to deposit sediment. The gas is broken up and thoroughly baffled and scrubbed in its passage across the tubes, and the condensates are made to travel in such a way as to increase the scrubbing effect and to ensure that the gas is in contact with the coldest water, and with tubes free from hot films, during the final passage through the casing of the apparatus. A patent reversible by-pass is arranged on the top of the condenser casing, and all valves required for the reversing operation are accessible from a single platform. High efficiency coupled with low water consumption is claimed for this condenser, which has been widely adopted, particularly in connection with vertical installations. One of the accompanying illustrations shows the condenser at Dudley, which is fitted with dual water supply, each available for the whole or half of the condenser—*i.e.*, town water, which subsequently passes partly preheated to the boilers, and circulating water taken from and returning to gasholder tanks. Condensation is effected before the gas passes to the exhausters.

Water Softening.

All the water used on the works is taken from the South Staffordshire Waterworks Company, and is softened by the "Permutit" base exchange method. The main vessel—3 ft. 6 in. in diameter by 7 ft. 6 in. high—is an "under-pressure" type of appliance, and is inserted in the main supply pipe to the principal works tank. The plant reduces to zero hardness 8400 gallons between regenerations. The regeneration process consists of passing through the plant a solution of 44 lbs. of common salt, and subsequently washing out the salt solution. This occupies 20 minutes, and with the present consumption of water has to be carried out every 12 hours.

The coal gas exhauster house contains three Bryan-Donkin sets each of a capacity of 40,000 c.ft. an hour, and each fitted with steam-vacuum control and small belt-driven air compressors for purification purposes There are also two Bryan-



Holmes "Super Type" Condenser.

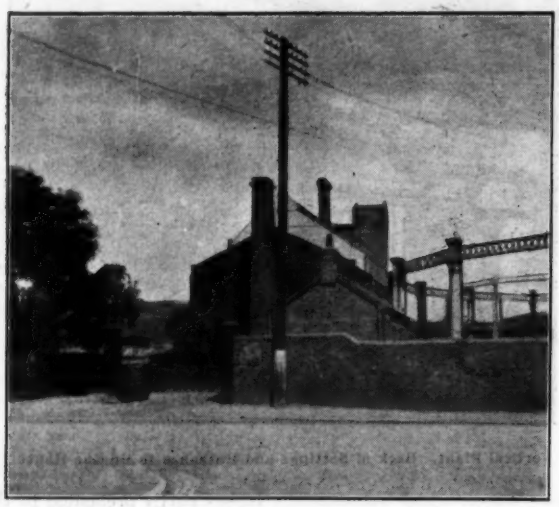
Donkin compressors driven by 5-h.p. "National" gas engines, for high-pressure district lighting at 3 lbs. per sq. in.

In the coal gas boiler house are two Cornish boilers made by H. & T. Danks, Ltd., of Netherton, Dudley, and fitted with Meldrum forced-draught furnaces for burning coke breeze.

The Company is a member of the Midland Co-Operative Tar Scheme. Tar is sent by "Sentinel" steam lorry (with special detachable tank) to either the Oldbury or the Wolverhampton Works of the Midland Tar Distillers, Ltd. Ammoniacal liquor is pumped to a storage tank of 5600 gallons capacity, and flows from this to the canal wharf at Parkhead, one mile distant, and 150 ft. below the works level. Canal boats transport the liquor to chemical works.

Carburetted Water Gas Plant.

Two Humphreys & Glasgow C.W.G. sets, each of 300,000 c.ft. a day capacity, were erected in 1917. The gas from this



New Entrance, showing Vertical Retort Extension to Old Inclined Retort House.

plant is purified separately, and mixed with the coal gas at the inlet of the district gasholder. There is a C.W.G. relief holder of 66,000 c.ft. capacity. Steam for the plant is raised by Cornish boilers manufactured by H. & T. Danks, Ltd., and, as in the case of the coal gas boilers, fitted with Meldrum forced-draught furnaces. The C.W.G. purifiers are by Clapham Bros., Ltd., and are fitted with patent 12-in. "Triumph" valves and "Triumph" reversing valve.

In addition to the C.W.G. relief holder already mentioned, there are four holders, all column guided. The capacities are 56,900 c.ft., 66,500 c.ft., 383,000 c.ft., and 482,700 c.ft.

Though the district is not large, there are great differences of level. It is divided into six sections according to level, and each is supplied through its own trunk main and governor. There are three 8-in., two 12-in., and one 10-in. Braddock counterbalanced water-loaded governors.

Pressure-Raising Plant.

A pressure-raising plant has recently been installed, drawing gas from any holder, and delivering to the inlet of the station governors. The plant is in duplicate, and consists of a Bryan-Donkin Rateau turbo fan of 200,000 c.ft. per hour capacity (with a pressure rise of 6 in. water gauge) driven by a Keighley two-cylinder 16-B.H.P. vertical gas engine. The speed of the engine shaft is 750 R.P.M., and of the fan 2000 R.P.M. The plant is complete with automatic by-pass and vacuum-breaking valves, and is housed in a new brick building, tiled inside, with reinforced concrete roof and upon reinforced concrete raft foundation.

There is a lorry garage on the works, heated by exhaust steam. There are also a blacksmiths' shop, gasfitting and cooker reconstruction shop, and stores. Work is proceeding on the rearrangement of these.

The "Metallisation" Process.

The next visit was to the works of Messrs. Metallisation, Ltd., where the "Schoop" process of metal spraying, in which coal gas is largely used, was inspected. By this process nearly all classes of material—iron, steel, wood, plaster, and even paper—can be coated rapidly and efficiently with an adherent layer of metal for protection or decorative purposes, especially where ordinary lining, galvanizing, &c., are not possible. Coatings of nearly any of the commercial metals and alloys can thus be applied, and, within limits, of any desired thickness, irrespective of the size, character, position, and shape of the article to be treated. The articles to be coated have to be neither submitted to a high temperature nor introduced into acid or liquor baths; and, further, it is unnecessary to preheat the material. During the operation the temperature of the surface is only slightly raised.

The spraying pistol, which weighs less than 3½ lbs., is connected to gas and air supplies; the former for providing the means of combustion, and the latter for providing the motive power for the automatic feeding device. The metal is automatically drawn from a reel into the pistol case, and fed uniformly and continuously, according to its melting rate, into the nozzle, where, entering a continuous reducing flame zone, it is melted and blown at a very high velocity, in the form of a fine spray or mist, on to the work to be coated. Within the pistol is an air-driven turbine mechanism which operates the wire feeding and straightening rolls.

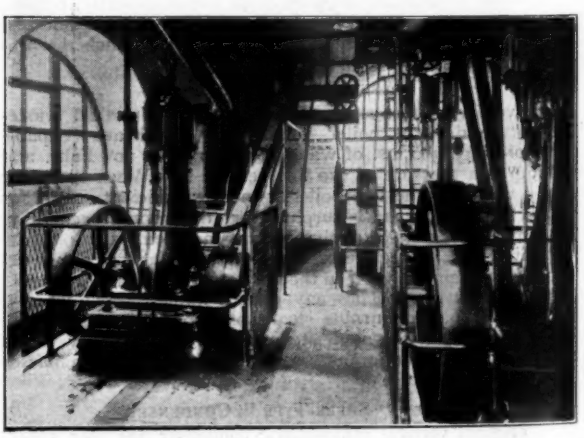
The nozzle of the pistol is aimed at the surface to be coated, and held at a distance of between 3 in. and 5 in. therefrom. In this short distance takes place the change of the wire from the solid to a molten state, thence to the spray, and instantly back to the solid, practically cold, coating. Metal and iron and steel are sandblasted prior to being "metallised." With a portable compressor, spraying can be carried out in any locality and at any height. Thus, for example, it is possible to coat with zinc, as an anti-corrosive agent, structural and other ironwork after erection.

Messrs. Metallisation have installed a plant for the economic coating of firebars, &c., with aluminium, as protection against high-temperature oxidation.

At the works of the firm, Messrs. W. Parkinson & Co. (incorporated in Parkinson & Cowan (Gas Meters), Ltd.), had on view a series of burners coated with aluminium by the "metallisation" process, which renders them immune from the effects of the products of combustion, and prevents corrosion. Of course, the spraying process is excellent for adding a finish to gas fires, &c.

The Wilmot "Super Truck."

Messrs. Metallisation had on view a Wilmot all-steel super truck, of which they are the sole manufacturers and selling agents. This truck has a patent superimposed sliding frame which extends beyond the normal position, but automatically returns to it when unloaded. This extension automatically increases the length of leverage by 6 in. or more, giving additional power. In practice the trunk is placed in position near the load, and the toe is pushed slightly under it. A chain grab on the truck is fixed to the load, and by gently striking a scotch plunger in the side frame, the wheels are locked. As the truck is pulled over, the centre of gravity of the load is shifted before the latter is raised; and when at length the superimposed frame is extended, the load is distributed centrally over the wheel base. The scotch is then released by a slight pressure on the brake lever, and the operator has a



Vertical Retort Plant Engine House.

comfortably placed load. A still greater advantage is found on unloading. Instead of falling over out of control, the load meets the ground on its lower edge, and goes down steadily under complete control. The truck is fitted with ball bearings, brakes, scotches, spring chassis, and rubber tyres, and is built of steel with a rust-proof finish.

New Gas Showrooms at Dudley.

The next, and final, move was to the showrooms of the Gas Company, which at present are under construction in High Street, Dudley—the main street of the town. Space forbids a description of these—an omission which, however, we hope to rectify when the building is completed.

It was in the lecture room of the showrooms that the visitors were the guests at tea of the Chairman and Directors of the Company—a pleasing finale to an energetic but well-worthwhile meeting in the town of Dudley.

SCOTTISH JUNIOR GAS ASSOCIATION (EASTERN DISTRICT).

In his Presidential Address, Mr. M. Darling, of Cowdenbeath, puts forward many interesting opinions. He advocates the use of wrapped and coated pipe for services, and suggests that all service pipes should be external to the house and taken through the wall in line with the meter. His remarks on the relation between pipe area and cost deserve careful consideration.

The Annual General Meeting of the Eastern District of the Association was held in Windsor House, 11, Hillside Crescent, Edinburgh, on Saturday, May 21. Mr. M. DARLING (Cowdenbeath), the President, occupied the chair.

The HON. SECRETARY (Mr. D. Yule, Alloa) read the report for the 23rd session, which stated that 7 new members had been added to the roll. The total membership was now 16 honorary members and 116 ordinary members. The financial statement submitted showed a credit balance of £38 1s. 10d., which was considered satisfactory.

These reports were adopted.

NEW OFFICERS.

The election of officers then took place. Mr. E. L. Farquhar, Lower Largo and Kennoway (Vice-President), becomes President for the ensuing year. Mr. Robt. J. Gavin (Kirkcaldy) was elected Vice-President. Mr. D. Yule (Alloa) was re-elected Hon. Secretary and Treasurer; Mr. J. Ford (Prestonpans) was elected Librarian; Mr. J. R. Moyes (Stirling) and Mr. Alex. MacDonald (Prestonpans) were re-elected Auditors. The Council members are: Messrs. J. W. Evans (Kennoway), D. Warden (Dundee), and T. Mackie (Kelty).

On the motion of Mr. J. SCOBIE, an honorarium of two guineas was voted to the Secretary for his work during the session.

Mr. DARLING expressed his appreciation to the members for the assistance rendered him by their turning-out to the meetings, and spoke of the pleasure it had given him to occupy the chair. He hoped that, as a result of the efforts recently made by the juniors, greater facilities would be provided to potential students in the area covered by the Eastern District. He then delivered his address.

PRESIDENTIAL ADDRESS

of M. DARLING, of Cowdenbeath.

When laying new mains, before deciding on the size of main to be laid, various factors must receive careful consideration: (1) The present requirements, the number of consumers to be catered for, how many lighting points and appliances each consumer is likely to instal; (2) the possible future needs of the particular district under consideration. To gain this information, it will be necessary to confer with the Burgh Engineer, who will be only too willing to provide the lay-out plan of the area, and the number of new streets or extensions to existing streets, along with the number of houses likely to be built in that area. One can then decide on the size of main required not for present-day needs, but for what may be necessary ten or fifteen years hence. When dealing with a scheme of this kind it is advisable wherever possible to lay the pipes in such a manner as to link them all up together, thus forming a circuit over the whole pipeline, and affording opportunity at any future date to carry out repairs or alterations without interfering with the supply to consumers.

RENEWALS OF MAINS AND SERVICES.

Before one embarks on a scheme of renewing and enlarging mains, much thought and consideration have to be given to costs, and various other points. The factor of pipe area in relation to cost deserves careful consideration. The area of a 4-in. pipe is 12·5 sq. in., and of a 5-in. pipe 19·5 sq. in.—equal to approximately 60 p.ct. increase in carrying capacity. The additional cost of the latter pipe is only a few coppers per foot run. Much expense can be avoided by employing high-pressure main where such has been installed, as any part of the district may be portioned-off into a single-way area, connected to the high-pressure main, and supplied through a high-pressure governor. Another effective and inexpensive method is to connect a high-pressure feeder to the low-pressure main through a reducing governor. Each method gives ample pressure and avoids heavy costs.

When a scheme of renewals is under consideration, it is wise to take advantage of the opportunities offered when street or road repairs or re-surfacing are in operation. This can best be done by keeping in close touch with the Burgh Engineer, who will give all information regarding streets and roads he intends to put under repair in any one year. In this way the mains in these streets can be examined, and necessary repairs carried out. In the case of side streets, small mains can be replaced with larger ones, and the heavy cost of reinstating can be avoided.

In the past it was the practice to lay mains in the roadway, and in many cases as near the centre as possible, to facilitate the laying of services to either side of the road. In those days the risk of fracture from vehicular traffic was exceedingly slight compared with that from the present-day heavy traffic; and if for no other reason, I would lay all mains under the footpath on one side of the street, with large feeders crossing the street at fixed intervals. This will prevent a number of crossings when services are required. Only in exceptional cases would I lay a main of less than 4 in. diameter, and never one less than 3 in.

JOINTS.

In the Cowdenbeath district, which is subject to disturbance from underground workings, we have had ample experience of both cast-iron and steel pipes, as well as the different types of joints; and the policy is to employ steel with long sleeve lead and yarn joints. The reason for adopting this joint is the convenience it affords. When a disturbance of ground takes place, this joint allows the pipe to draw or recede in the sleeve, thus relieving the pipe of undue strain. The welded joint has not yet been adopted, but it is proposed to lay a section for trial in the near future. The terrific tension and compression caused by movement of a section of the land surface must severely test a welded main.

A few years ago a steel main was lifted right out of the ground. The pipe was lying at a depth of 2 ft., and the compression of the disturbance was so great that, after the pipe had receded into the sleeves as far as was possible, it was forced through the soil to the surface, drawing a joint at either side of the raised part, and so relieving the strain. This necessitated the cutting-out of part of the pipe. Another bad disturbance which caused the pipes to be drawn occurred on the high-pressure main. In this instance we had to insert a piece of pipe. What would have happened in these cases had welded joints been in use?

Cowdenbeath offers an example of rapid growth of gas sales. Twenty-six years ago there were no gas-works. On their erection, it was estimated that in ten years the output of gas would be 20 million c.ft. Last year—24 years after the opening of the works—the output was 106 millions.

The mains in this district are 8-in. cast iron from the works to the centre of the town, splitting to 6 in., with 4, 3, and 2 in. into side streets. We have also a high-pressure main running through the centre of the town, supplying the village of Crossgates two miles away, and Aberdour six miles distant. We have found this main of great advantage as a feeder to the low-pressure main and as supply direct to two different areas in Cowdenbeath through high-pressure governors. Of 5000 consumers, 50 p.ct. are supplied by high-pressure main. For some time we have had a scheme of renewals in operation by which we relay one or two streets each year in conjunction with the operations of the Burgh Engineer.

PIPING BEYOND THE METER.

On looking through a few of the housing schemes, it appears that a number of architects still allow the installation of small gas pipes. This reacts against the gas supplier when the house is occupied. It is most unsatisfactory to put in a service and meter capable of meeting the demand, supply modern appliances, and then discover that the house has been carcassed with pipes incapable of doing the duty required of them.

TYPES OF SERVICE.

The various types of service pipes in use might be set out, showing the advantages and disadvantages of each.

Lead Pipes.—These have the great advantage of being entirely free from corrosion. Against this has to be set the disadvantage that lead, being pliable, has a tendency to sag, which in a service pipe would cause stoppage from condensation. To avoid this, the pipe has to be properly protected and encased in ducts of some description. The high cost of lead is also very much against its general use.

Wrought-Iron Pipes.—This type of pipe is fairly cheap, and is practically free from internal corrosion, but, being of light manufacture, does not have a long life unless laid in a good clean soil.

Galvanized Iron Pipe.—The only apparent advantage of this pipe is its non-corrosive coating. Here again one has to be very careful of the nature of the soil, as external corrosion may offset any advantage gained by the use of this service pipe.

Steel Tubes.—Steel tubes of steam quality have many advantages. They are of heavy manufacture, are practically free from fracture—which reduces the labour charges, as these pipes do not require to be laid as deep as some of the other pipes—and have a fairly long life in any kind of soil. They have a disadvantage—the risk of stoppage from internal corrosion.

Wrapped and Coated Pipe.—For all general purposes this in my opinion is the best type of service pipe. When pro-

perly wrapped, and coated with a good quality solution, and when the joints are carefully protected, this type of pipe is as nearly as possible immune from the external corrosive actions of various soils. The only disadvantage—if one may term it so—is that these pipes are a little more costly to purchase. They are, however, cheaper to maintain, as the protective coating lengthens their life.

CONNECTING SERVICES TO MAINS.

When making service connections to the main, it is essential to use a good type of joint, as this may be another source of unaccounted-for gas. Cast-iron mains should not be bored and tapped, and the service pipe screwed direct into the main, as heavy traffic passing over this connection may easily fracture the main where it has been bored. I prefer to use a fairly heavy saddle with a wide gland. In the case of a large service coming off a 3-in. or even a 4-in. main, it is advisable to cut the main and insert a branch piece. Where steel tubes are in use, the two popular methods of service connections are the cast-steel saddle and the expanding nipple. When using the saddle I have found that the better method is to bore and tap the main, fix the saddle, and insert a long nipple right through the saddle into the main. This ensures a gas-tight job; as the nipple is in the main, the saddle cannot move out of position.

Wherever possible I would take the service connection off the side of the main; but when the connection must be taken off the top, a tee piece should be inserted in place of the usual bend or elbow, thus facilitating the clearing of the service should a stoppage occur. As the majority of undertakings are troubled in a greater or less degree with deposits, it is necessary when laying the service to leave provision for cleaning purposes. This can best be done by cutting out all bends, &c., wherever possible, and inserting tee pieces. It is also advisable to have a union coupling between the main and the meter, preferably on the footpath.

In no case would I lay a service pipe of less than ¾-in. diameter for the smallest connections. Where in doubt, give the benefit of the doubt to the larger size every time. The volume delivered is much greater, and the difference in price very small—the price of 1-in. pipe being something near 4½d. per ft., and of 1¼-in. pipe about 6d. per ft., while all other charges are the same. The extra cost of the larger service is money well spent.

An error of the past that should not be repeated to-day is laying service pipes under floors. This is a dangerous practice in any place. In a mining area it may lead to serious consequences, should the service pipe be fractured by underground workings. One cannot be too careful when choosing the position of the service pipe; and my opinion is that all pipes should be external to the house and taken through the wall in line with the meter.

Discussion.

Mr. E. L. FARQUHAR considered that the President was in a splendid position to explain these matters of distribution, in so far as mains and service pipes were concerned, on account of the difficulties encountered in Cowdenbeath with ground subsidence. Regarding the determination of size of pipes, he thought it would be advisable to look farther ahead than ten or fifteen years. The point regarding linking-up of pipe lines on the arterial system was a sound proposition. It was necessary always to keep right with builders and architects, as in helping them they were helping the industry as well. He asked the President if he had had any experience with the lead wool joint. He, personally, considered this the more scientific method; and when properly caulked, it made a sound job. He had had some experience at Kennoway with the welded joint. They were not troubled there with the ground subsiding, and had found this type of joint was much more speedily made, and ultimately formed a homogeneous pipeline. He thought the time was approaching when the gas undertakings would secure control and responsibility right up to the burners. After all, it was the only satisfactory arrangement.

Mr. R. J. GAVIN considered the topic most appropriate. Every day the distribution sections were becoming more efficient. In view of electrical competition, this was essential. He asked if any trace of internal corrosion had been found after the pipe had sprung in the instance mentioned.

Mr. R. L. LAING said that in Brechin he had some experience with the long sleeve joint. They had recently examined one laid in 1913, and it was found to be in splendid condition. There certainly was a lot of corrosion inside. He did not agree with the President's remarks about placing services external to the premises.

Mr. D. MORTON asked the size of the house, and whether it was modern or old, where the small service had been seen.

Mr. DARLING, replying to the points raised, considered that where it was possible to look ahead for a period of over fifteen years one certainly should do so. He had used both cast lead and lead-wool, and had found that both were quite good. It was very desirable to see that the joints were made under supervision. In regard to internal corrosion on steel tube, three years ago they had cut-out a 3-ft. length and submitted it for test to the manufacturers, who reported that, after the pipe had been cleaned, it was found to be in splendid state. He agreed with Mr. Laing that a pipe under the conditions mentioned by him would not be very attractive; but for a pipe to be laid under a floor for (say) 30 ft. would be exceedingly bad practice in a mining area. In regard to the very small service, while the premises were old, they were in splendid condition; and the work was decidedly well worth while.

The members then adjourned for tea, and an enjoyable evening was spent.

The prizes for papers read during the session were awarded as follows: (1) Mr. Geo. E. H. Keillor, Dunfermline. (2) Mr. W. S. Johnston, Dundee. For paperettes: (1) Mr. Robt. L. Laing, Brechin. (2) Mr. John Ford, Prestonpans. (3) (Tie) Messrs. A. Nisbet, Lochgelly, and John Duffy, Dundee.

INSTITUTION OF GAS ENGINEERS.

ANNUAL REPORT OF THE COUNCIL.

The following are the main portions of the report of the Council of the Institution of Gas Engineers for the year 1926-27, which will be submitted at the forthcoming annual meeting.

In presenting their report on the work of the Institution during the year 1926-27, the Council would first refer with feelings of gratification to the excellent manner in which the gas supply of the country was maintained during the prolonged coal stoppage. Notwithstanding the serious difficulties which had to be overcome, the gas industry did not fail in its indispensable service to the public. To each and all who contributed in any way to the achievement of this result, acknowledgments are due.

MEMBERSHIP.

The state of membership of the Institution at the end of the year 1926 is indicated in the following table, which also contains comparative figures relating to the previous year; the net increase in membership being seven:

Class of Membership.	At Dec. 31, 1925.	Elected and Transferred in 1926.	Deceased, Resigned, and Transferred in 1926.	At Dec. 31, 1926.	Increase or Decrease.
Hon. members	27	2	1	28	1
Members	834	28	26	836	2
Associate members	177	21	11	187	10
Associates	14	1	..	15	1
Students	32	7	14	25	− 7
Total	1084	59	52	1091	7

The congratulations of the Institution have been tendered to Sir David Milne-Watson, LL.D., D.L., and Mr. J. W. Mellor, D.Sc., F.R.S., Honorary Members, the former having received the distinction of Knighthood at the hands of His Majesty, and the latter having been elected to Fellowship of the Royal Society.

TRANSFERENCES.

The following have been transferred from the class of Associate Member to that of Member:

Percival Joseph Channon	Newport Pagnell.
James Howard Goldsmith	London.
Herbert Douglas Lees	Hexham.
Frank L. Scaife	Stockton-on-Tees.
Sydney Smith	Birkenhead.

STUDENTS.

The following have been admitted as Students:

Donald Birch	Hereford.
Joseph Cyril Brook	Halifax.
Donald L. Brown	Hove.
Richard Leslie Maddocks	Kettering.
Stanley H. L. Mugford	London.
Harold J. Stanley	Hoddesdon.
George Eric Stevenson	Nottingham.
Charles Denis Wall	Grays.

DECEASES.

The Council regret that the deaths of the following members have to be reported:

James Francis Braidwood	London.
Arnold Wiseman Branson, J.P.	West Hartlepool.
Daniel Irving	Bristol.
René Masse	Paris.
Fred Halliwell Pickles	Kildwick.
Frederick Augustus Pye	Chester.
Sydney Yarrell Shoubridge	Eastbourne.
Benjamin William Smith	Walsall.
Louis William Smith	Leicester.
Geoffrey Weyman, D.Sc.	Newcastle-on-Tyne

Of these, Mr. Irving filled the office of President of the Institution during the year 1904-5. Mr. Shoubridge served as

Hon. Secretary from 1907-13, and as Hon. Auditor from 1917 until the time of his death.

National Gas Council.

The four representatives of the Institution on the Central Executive Board of the National Gas Council for the year 1926-27 have been Messrs. Charles F. Botley, John W. McLusky, H. D. Madden, and John Wilkinson.

Affiliated District Associations.

The eight affiliated District Associations have been represented on the Council of the Institution for the year 1926-27 by the following:

Eastern Counties Association	Mr. Frank Prentice.
Irish Association	Mr. Joseph McNicholl.
Manchester District Institution	Mr. Charles S. Shapley.
Midland Association	Mr. Francis C. Briggs.
North British Association	Mr. James Bell.
North of England Association	Mr. Herbert Lees, J.P.
Southern Association	Mr. Robert Robertson.
Wales and Monmouthshire Institution	Mr. William H. Johns.

Annual General Meeting.

In consequence of the coal stoppage, the sixty-third annual general meeting was postponed from June to Tuesday, Wednesday, and Thursday, Sept. 21, 22, and 23. It was held at the Institution of Civil Engineers, Great George Street, Westminster, under the presidency of Mr. Charles F. Botley, Engineer and General Manager to the Hastings and St. Leonards Gas Company. Particulars are included in the report.

H. E. Jones London Gold Medal.

The Council (by ballot) have awarded the H. E. Jones London Medal for the year 1926 to Mr. C. H. Rutter, for his paper on "The Development and Reconstruction of the Portslade (Brighton) Gas-Works." It will be presented accordingly at the forthcoming meeting.

National Fuel and Power Committee.

The Institution was invited by the National Fuel and Power Committee of the Board of Trade to assist in the preparation of evidence regarding the technical aspects of the fuel problem as they affect the gas industry, for placing before the Committee.

It being felt by the Council of the Institution that it would be desirable in such evidence to have regard to questions involving new legislative measures, the co-operation of the National Gas Council was obtained, and a Joint Committee was appointed to deal with the matter, consisting of the Emergency Committee of the Institution, with Prof. Cobb, and Messrs. T. Hardie, F. H. Jones, T. P. Ridley, and A. W. Smith nominated by the National Gas Council. Prof. Cobb and Mr. T. Hardie were entrusted with the drafting of the evidence, which, after having been duly approved by the Joint Committee, was presented to the National Fuel and Power Committee.

Gas Regulation Act, 1920.

At the request of the National Gas Council, the Council appointed a Committee to consider suggestions referring to a desired alteration to the sections of the Act providing for the testing of the gas when saturated with moisture. It has been pointed out that in the near future undertakings may desire to supply gas freed from moisture, so as to reduce troubles in the mains and services from water deposition. Under the present conditions of testing for calorific value, there would be a loss to the undertakings of approximately 1·25 p.ct. of the volume measured on the consumers' meters, if moisture-free gas is supplied. The report of the Committee and recommendations on the subject have been forwarded to the National Gas Council.

Stamping of Gas Meters.

As the stamping of meters has not in all cases been complied with, the Institution was asked to call the attention of its members to the legal necessity under section 13 of the Gas Regulation Act, 1920, for the official stamping of all meters used by consumers for the registration of gas. A memorandum on the subject was accordingly issued; the Council feeling that it could only be due to misapprehension that unstamped meters were being so employed.

Engineers' Registration Bill.

Communications have been considered from the Society of Technical Engineers with respect to a movement having for its object the registration of engineers. Through the efforts of this Society, a Bill "to provide for the registration of and to regulate the qualifications of Engineers" has been introduced into the House of Commons and read for the first time.

The Council decided that the Institution of Gas Engineers should oppose the Bill; and accordingly, after a conference with eight other Engineering Institutions, which was convened by the Institution of Civil Engineers, steps are being taken jointly to prevent the Bill from being proceeded with. The National Gas Council are co-operating with the Institution in this matter.

British Engineering Standards Association.

The Institution took part in a conference convened by the Association to consider the question of the reduction of width across flats of nuts and bolt heads. It was agreed that the Association should be represented at any conference on international standards for nuts and bolts which might be held in connection with this subject.

The question of the desirability of the standardization of sieves and screens was discussed by various bodies interested, at another conference arranged by the Associations, at which the Institution was represented. A resolution was passed in favour of the formation of a committee of the Association to take this matter up.

The Association has asked for the views of the Institution as to the desirability of steps being taken with the object of an international standardization of pipe flanges. The Council have expressed the view that the subject is worthy of consideration.

Institution of Civil Engineers' Heat Engine and Boiler Trials Tabulation Committee.

On this Committee the Institution is represented by Messrs. C. Rhodes Armitage, W. Newton Booth, Harold Hollings, and E. W. L. Nicol.

Last summer the provisional report of the Committee was circulated to those known to be interested in the subject of the testing of heat engines, both at home and abroad. During the past winter the Committee have had under consideration the numerous communications which they have received in regard to the provisional report, and as a result the latter has been somewhat modified. The complete report will be submitted to a general meeting of the members of the Institutions represented on the Committee to be held on June 10 next, after which it is expected that the report will be made generally public.

Kelvin Medal.

At the request of the Kelvin Medal Award Committee, the Council, on behalf of the Institution, nominated a person whom they considered worthy of this distinction, which is conferred every three years in recognition of pre-eminence in the branches of engineering with which Lord Kelvin's scientific work and researches were closely identified. After considering the nominations of the leading engineering bodies in all parts of the world the Award Committee announced their award for the year 1926 in favour of the Hon. Sir Charles A. Parsons, K.C.B., M.A., D.Sc., LL.D., F.R.S.

International Conference on Bituminous Coal.

The Council appointed Mr. G. M. Gill to represent the Institution at the First International Conference on Bituminous Coal which was held at Pittsburgh under the auspices of the Carnegie Institute of Technology during the week commencing Nov. 15, 1926. No fewer than forty-three papers were presented at the conference, the proceedings of which have been published as a special volume.

In his report Mr. Gill states:

It was a privilege to have had the opportunity of attending a gathering at which so many scientists of world-wide renown were present to describe in person the work with which their names are identified.

The Conference was organized by Dr. Thomas S. Baker, the President of the Carnegie Institute of Technology, Pittsburgh; and associated with him on the Advisory Board were men of international reputation, such as Samuel Insull, Charles M. Schwab, and the Hon. Andrew W. Mellon.

The question of repeating this Conference at periodical intervals in a few of the important countries was freely discussed, and such an idea seemed to gain universal approbation. It is to be hoped that steps will be taken to bring this about.

The papers were generally of a high order, and dealt exhaustively for the most part with subjects associated with coal and its utilization.

No less than 1700 people attended the Conference; and at times there must have been 1200 people in the hall. There was an atmosphere of enthusiam and keen interest in the papers; and the audience comprised all grades of technical men and women, and others interested in the development of coal and its bye-products, gas oil, and fuels generally.

Dr. C. H. Lander, Dr. R. Lessing, and the writer, who had been specially invited to read papers at the Conference, were very hospitably received and entertained, and left Pittsburgh at the end of the week much impressed with the value of the work done, the enthusiasm shown by those attending the meeting, and the large scale upon which it has been organized.

Institute of Fuel.

The Institution associated itself in the formation of the Institution of Fuel Technology, the first meeting of which was held on Dec. 7, 1926, under the Presidency of the Rt. Hon. Sir Alfred Mond, Bart.

Another Society was formed under the name of the Institution of Fuel Economy Engineers, of which also Sir Alfred Mond became President.

Steps are being taken to effect the fusion of these two organizations into one under the title of the Institute of Fuel, with Sir Alfred Mond as its President, and Mr. H. L. Pirie and Mr. Edgar C. Evans as Joint Hon. Secretaries.

Tar Conference.

A conference on tar, organized by the Society of Chemical Industry, the Institution of Gas Engineers, the Coke Oven

Managers' Association, the Institution of Mining Engineers, and the Manchester Geological and Mining Society, was successfully held at Manchester on Friday, Nov. 26, 1926; the attendances throughout being very large. A number of important papers were read and discussed.

INSTITUTION OF PUBLIC LIGHTING ENGINEERS.

Mr. C. Dru Drury, of Sunderland, and Mr. F. P. Tarratt, of Newcastle-on-Tyne, were appointed to represent the Institution at the conference of the Institution of Public Lighting Engineers, which was held at Newcastle-on-Tyne from Sept. 14 to 16, 1926.

STANDARD SPECIFICATION FOR STREET LIGHTING.

The Council have had under consideration the British Standard Specification for Street Lighting proposed by the British Engineering Standards Association. The specification is intended to provide a basis upon which street lighting installations can be compared, tenders invited, and installations tested on an equitable basis. It furthermore specifies the technical conditions applying to the maintenance and testing of street lighting installations under service or working conditions.

Arrangements have been made for the views of the Council on the terms of the specification to be suitably communicated in due course.

INSPECTION AND MAINTENANCE OF CONSUMERS' APPLIANCES.

A joint conference was held with the British Commercial Gas Association at the Institution of Mechanical Engineers on Feb. 16, when the subject of the inspection and maintenance of consumers' appliances was discussed.

The following resolution was unanimously passed:

> That in the opinion of this conference an efficient system of periodical inspection and maintenance of the gas appliances in all consumers' premises (backed by a constant supply of gas adequate to meet the maximum demand) is essential to the permanent prosperity and future progress of the gas industry, and to the complete fulfilment of its duties to the community; and that to this end every possible facility and encouragement should be given for the education and training of the personnel necessary for carrying out the work entailed.

NATIONAL ILLUMINATION COMMITTEE OF GREAT BRITAIN.

This Committee is constituted by the co-operation of the Illuminating Engineering Society, the Institution of Electrical Engineers, the Institution of Gas Engineers, and the National Physical Laboratory. Mr. W. J. A. Butterfield, Mr. J. G. Clark, Dr. Harold G. Colman, Mr. Harold E. Copp, and Mr. Robert Watson are the representatives of the Institution of Gas Engineers on the Committee. The report of the Chairman (Lt.-Col. K. Edgcumbe) for the year 1926 was given on p. 242 of the "JOURNAL" for April 27.

BRITISH ENGINEERING STANDARDS ASSOCIATION.

Draft Report on work of Illumination Section during the past year, for the British National Committee of the International Illumination Commission.

The progress of the work of the Illumination Section of the British Engineering Standards Association during the past year is as follows:

The Sub-Committee on Illumination Glassware (39/3/-) has practically completed its first specification for an Illumination Fitting of Translucent Glassware for Interior Lighting. A panel has been appointed to consider the question of neck dimensions of the glassware and galleries; and it is hoped that this panel will be able to arrive at its conclusions within the next few weeks.

It was reported last year that difficulty had been experienced in obtaining the co-operation of the glass-makers. This difficulty has been overcome during the past year, and the Committee has had the benefit of the assistance of five or six of the leading glass-makers during the past six months.

The Committee is also trying to take into account the requirements of those using gas as the illuminant, and the gas interests are assisting on the panel dealing with dimensions and galleries; and it is hoped that the specification, when completed, will be suitable for adoption by both the gas and the electrical industries.

The Sub-Committee on Industrial Reflector Fittings (39/4/-), as was reported last year, completed Specification No. 232, "Industrial Reflector Fittings for Direct General Lighting, No. 1 (Dispersive Type)." Since the issue of this specification two points in regard to it have been brought to the notice of the Association; and the Committee have agreed to alter the table to show the gauges of metal instead of the thicknesses of steel, a note being added giving the trade tolerances usually allowed on these sheets. The note to Clause 6 has also been altered to read:

> This figure is *based upon* and complies with the recommendation of 20° from the horizontal for light sources at distances of not less than 6 ft., contained in the Second Report of the Departmental Committee on Lighting in Factories and Workshops, 1921,

the words "based upon" having been added, and the words "but may be altered later" deleted as being liable to cause confusion, owing to their being interpreted in some instances to mean that it was not necessary to comply with the Home Office recommendations.

In the work of both this Committee and the Committee on Illumination Glassware, difficulty has been experienced owing to the wide tolerances allowed on the light-centre length of electric lamps (see B.S.S. No. 161); and this Sub-Committee is consulting with the Electric Lamp Sub-Committee in regard to the matter. It is hoped that, even if a common standard cannot be set up for all types of lamp, light-centre lengths within narrow limits can be established separately for (*a*) pear-shaped bulbs, and (*b*) spherical bulbs. The reflector fitting could then be marked to indicate the type of lamp to be used with it.

This subject is recognized as being of considerable importance in the case of the dispersive type of reflector, but is of even more importance in the case of the other types of reflector which the Committee has in mind; and the preparation of further specifications has been deferred pending some agreement in regard to the light centre lengths.

The Sub-Committee on Street Lighting (39/5/-) has completed its draft specification. Reference was made last year to the question of glare; and it has been found possible, thanks to Mr. Walsh, of the National Physical Laboratory, and to the considerable amount of work done by the G.E.C. Research Laboratories in investigating Mr. Walsh's proposal, to include a reference to glare in the specification. A method has been devised, and is given as an appendix, whereby the degree to which a given installation may be expected to be free from glare may be calculated approximately.

Feb. 1, 1927.

GAS FOR CLINICAL PURPOSES.

At the request of the National Gas Council, the Council of the Institution has appointed a Committee to consider with Sir Henry Gauvain, M.D., M.Ch., Medical Superintendent of the Lord Mayor Treloar Cripples Hospital and College, Alton, certain problems relating to the qualities of radiation that are obtainable from different sources, including gas, and to report thereon.

This Committee consists of Mr. H. E. Bloor, Mr. C. F. Botley, Sir Arthur Duckham, Mr. E. V. Evans, Mr. F. W. Goodenough, Dr. H. Hartley, Mr. P. G. G. Moon, Mr. W. E. Price, Dr. E. W. Smith, Mr. J. Wilkinson, and Mr. H. J. Yates. A Sub-Committee consisting of Mr. Evans, Dr. Hartley, and Dr. Smith is engaged on the details of the work.

The preliminary report of the Committee has been transmitted to the National Gas Council.

EDUCATION SCHEME.

The Education Scheme is steadily forging ahead and finding its place in the life and development of the industry. The progress, though not so great as could have been wished, and many expected, is, however, greater than is generally realized. Viewed in itself it is not unsatisfactory, but contrasted with the needs of the industry it is still inadequate. Altogether this year 211 candidates have entered for the Institution's examinations. This represents an increase of 30 p.ct. on 1926, which itself was an increase of 50 p.ct. on 1925, so that in two years the numbers have doubled.

The early years of the administration of such a scheme are bound to reveal points requiring amendments in order that it may fulfil its purpose as fully as possible. Some of the difficulties that have been encountered are inherent in the special circumstances of the industry; others, fortunately, can be overcome. The latter have been fully considered by the Committee; and proposals for the modification of the Regulations in certain particulars will be laid before the Institution at its annual meeting, together with a full report on the subject.

It is a welcome indication of an increasing realization of the value of the Education Scheme, that the necessity for these modifications has been stressed by many members of the technical staffs of the industry acting through the Junior Gas Associations. Whereas only two or three years ago large numbers of potential students appeared rather indifferent to the Scheme as a whole, the attitude to-day is changed, and the great majority are keenly appreciative of the value of the Institution's Scheme. It is hoped that the next few years will witness an equal appreciation on the part of the administrators of the industry, and that this will be shown in a great increase of facilities for promising students to attend day-time classes, in the granting of necessary financial assistance, and in the recognition of successes achieved.

Mr. H. C. Smith, of Tottenham, has been appointed as a fourth Examiner in Gas Engineering, and Mr. J. Terrace, of Sydenham, and Mr. J. P. Leather, of Letchworth, have been added to the Board of Examiners—Mr. Terrace in Gas Engineering and Mr. Leather in Gas Supply.

WROUGHT IRON TUBING COMMITTEE.

This Committee, consisting of Mr. Albert Stokes (Chairman), Messrs. J. Ferguson Bell, J. E. Blundell, C. F. Botley, Fred. Davies, Stephen Lacey, W. E. Price, Samuel Tagg, F. P. Tarratt, J. Wilkinson, and R. Hy. Ruthven (Hon. Secretary), have completed their work of preparation of specification for (1) wrought-iron gas, water, and steam tube strip; and (2) wrought-iron gas, water, and steam qualities tubes and fittings. The specification has been adopted by the Council, and has been published. The first list of approved British firms who agree to produce genuine wrought-iron strip of British manufacture conforming with this specification is being prepared.

The Council, in conveying their thanks to the Committee for their services, have requested them to continue in being for

the purpose of investigating problems connected with corrosion of tubes; and a commencement has been made on this work.

REFRACTORY MATERIALS COMMITTEE.

The Joint Committee of the Institution and the Society of British Gas Industries appointed for the year 1926-27 consisted of Mr. J. P. Leather (Chairman), Dr. J. W. Mellor (Director of Research), Messrs. J. Ferguson Bell, C. F. Botley, Prof. John W. Cobb, Dr. H. G. Colman, Messrs. T. Hardie, W. H. Johns, P. N. Langford, H. D. Madden, W. E. Price, T. F. E. Rhead, Dr. E. W. Smith, Messrs. S. Tagg, and J. Wilkinson (representing the Institution); and Messrs. T. Allen, M. Barrett, F. H. Brooke, Albert Cliff, G. V. Evers, J. W. Fagan, W. T. Gardner, G. H. Pearson Perry, and Frank West (representing the Society).

The recent regretted death of Mr. Albert Cliff has removed a member who took an active interest in the work of the Committee from its inception, and whose co-operation as a manufacturer was highly appreciated.

The report of the Committee relating to matters which have been dealt with during the year under review is in course of preparation for presentation at the forthcoming annual meeting of the Institution.

GAS INVESTIGATION COMMITTEE.

The work of this Committee has continued in two main branches. The investigation of the products of combustion of gas appliances, with special attention to conditions of production of carbon monoxide, has been carried out by Mr. J. W. Wood and his Assistant, Mr. G. B. Howarth. Two gas fires have received detailed attention, and have been made the means of acquiring considerable information, which is embodied in the Seventeenth Report for the meeting of the Institution in June.

Dr. Parker and his Assistants, Mr. H. Kerr and Dr. C. B. Marson, have continued the investigation of various factors in the carbonization of coal. The work has been carried out at the University of Leeds on "Studies in Carbonization," Part 2. The influence of mixing various sizes of coal, of adding coke, and of adding some incombustible constituents has been determined. The results are embodied in the Eighteenth Report.

Dr. C. B. Marson has been added to the staff of the Committee as a Research Assistant, resigning his post as Gas Research Fellow for the purpose. Dr. Marson's appointment was consequent upon the transference of Dr. A. C. Monkhouse to the position of Research Chemist to the newly formed Gas-Works Effluent Research Committee.

The thanks of the Committee are due to Mr. C. S. Shapley and the Leeds Corporation Gas Department for continued facilities at their Meadow Lane Works.

GAS RESEARCH FELLOWSHIP.

Consequent upon the transference of Dr. C. B. Marson to the staff of the Gas Investigation Committee, a new election was necessary to the Gas Research Fellowship; and this was made in the person of Mr. J. A. Sutcliffe, B.A. (Oxon.), who had had some previous research experience at Oxford. Mr. Sutcliffe has continued work on the influence of inorganic constituents on the carbonization and gasification of coal, dealing with the influence of sodium carbonate and other alkalies in different quantities and through a considerable range of temperature, along with other matters. The results come forward in the Gas Research Fellowship 1927 Report in the form of a joint paper by Mr. Sutcliffe, Mr. W. R. Branson, B.Sc., Mr. F. J. Dent, B.Sc., and Prof. Cobb.

LIVESEY PROFESSORSHIP.

The work of the Department of Coal Gas and Fuel Industries both in teaching and research has been continued under the direction of Prof. Cobb. The normal day courses have been given, with special evening lectures on "The Principles of Gas Distribution," by Mr. S. Lacey, of the Gas Light and Coke Company; on "Bye-product Coking Processes," by Mr. C. P. Finn, of Manvers Main; and on "Furnaces and the Utilization of Coal," by Prof. Cobb. An increasing desire is shown by students in other technical departments of the University to acquire some knowledge of fuel by attendance at lectures.

Changes in the staff of the Department are reported above under Gas Investigation Committee and Gas Research Fellowship. In addition, Dr. H. S. Houldsworth has resigned his post as Assistant Lecturer and Research Assistant in Refractory Materials on being called to the Bar.

Research has been actively followed during the year for the Gas Investigation Committee, the Benzole Research Committee, the newly formed Gas-Works Effluent Research Committee, and also in connection with the Gas Research Fellowship. Further researches have been made by staff and students; some of the latter continuing their work by the aid of grants from the Fuel Research Board.

CORBET-WOODALL SCHOLARSHIP.

Mr. A. G. Grant resigned the Corbet-Woodall Scholarship on completing a four years' course, taking a B.Sc. degree with 1st Class Honours in Gas Engineering, and proceeding to an appointment with the Gas Light and Coke Company. His successor, Mr. C. B. Bolland, was chosen by the electing Committee from a considerable number of applicants, and has started on an Honours Course in Gas Engineering in the University.

GAS-WORKS EFFLUENT RESEARCH COMMITTEE.

In response to an invitation from the National Gas Council, the Institution of Gas Engineers carefully considered the best means of dealing with the urgent question of minimizing the quantity of liquid effluent from gas-works and the best possible methods of treatment. Following on one or two preliminary meetings, a Committee was formed to deal with the question, with Mr. C. F. Botley as Chairman and Prof. Cobb as Hon. Secretary, the other members being: Dr. T. Lewis Bailey, Dr. H. T. Calvert, Mr. W. E. Price, Dr. E. W. Smith, Prof. Arthur Smithells, and Mr. J. Wilkinson; with Mr. P. N. Langford and Mr. F. Lee as co-opted members.

The membership of the Committee was made representative of different kinds of knowledge and experience on the engineering and chemical sides. Dr. Parker (Deputy Secretary) prepared a useful preliminary statement on the subject, and Dr. A. C. Monkhouse was appointed as Research Chemist. Experimental work has been in progress at Hinckley by permission of Mr. F. Lee and his Committee, and a report is in course of preparation.

ROYAL SANITARY INSTITUTE CONGRESS.

The President (Mr. Charles F. Botley) and Mr. John Terrace were appointed to represent the Institution at the Jubilee Imperial Congress of the Royal Sanitary Institute which was held in London from July 5 to 10, 1926.

LORD MOULTON MEMORIAL.

The fund for the memorial to the late Lord Moulton (Past-President), to which the Institution contributed, realized £2076, and has been expended in the conversion of the old schoolroom in which he did most of his work, at Kingswood School, Bath, into a Speech Hall suitable for all the assemblies of the school, both public and private.

It was opened by H.R.H. The Prince of Wales on Nov. 10, 1926. Mr. J. Wesley Whimster attended as the representative of the Institution.

CENTENARY OF GAS SUPPLY IN BERLIN.

The Institution was represented by Mr. A. F. P. Hayman, of Antwerp, at the Centenary Celebrations of the Gas Supply in Berlin, which were held from Sept. 19 to 21, 1926.

The programme included a banquet at the Hotel Kaiserhof, Berlin, with Herr Heck, the President of the Gas Betriebs Gesellschaft (which has now taken the place of the Imperial Continental Gas Association), in the chair. The congratulations of the Institution, and best wishes for the continued and increasing success of the "G.B.G.," were presented on that occasion.

Visits were made to the Schoneberg Works; the Gitschiner Strasse Works; Potsdam; Dessau; the works of the Askania Company; Worlitz; and the Mariendorf Works.

COLLECTED PAPERS BY SIR DUGALD CLERK.

During the year have been published the collected papers, &c., by Sir Dugald Clerk, K.B.E., D.Sc., LL.D., F.R.S., Past-President of the Institution, under the title of "The Relative Thermal Value of Gas and Electricity." Sir Dugald Clerk kindly contributed to the cost of production of this valuable work, of which a copy has been sent to every member on the roll of the Institution at the date of publication.

LIBRARY.

A list of the donations to the library received during the year is appended to the report; and the Council desires cordially to express its acknowledgments.

Thanks are especially due to Mr. J. W. Napier, of Alloa, for his gift of a beautifully executed bronze oak-mounted mural medallion of William Murdoch, by Mr. H. S. Gamley, A.R.S.A., Edinburgh. It is a reproduction from the original plaster model of the bronze medallion which was placed on the house at Bello-Mill, Lugar, Ayrshire, the birthplace of Murdoch, by the North British Association of Gas Managers in 1913, and unveiled by the late Mr. G. R. Hislop, of Paisley.

ACCOUNTS.

A copy of the accounts for the year ended Dec. 31, 1926, duly certified by the Auditors, is appended to the report.

The Council have appointed Mr. A. E. Broadberry as Hon. Auditor in place of the late Mr. S. Y. Shoubridge; the professional Auditors being Messrs. Wood, Drew, and Co.

J. WILKINSON, *President.*
WALTER T. DUNN, *Secretary.*

BENEVOLENT FUND REPORT.

The following is the report of the Committee of Management of the Benevolent Fund for the year 1926-27:

The Committee of Management have pleasure in reporting, with reference to the accounts for the year ended Dec. 31, 1926, that a total sum of £564 10s. 5d. was received, derived from the following sources: Annual subscriptions, £304 2s.;

donations, £82 18s.; interest on investments, £146 7s. 9d.; interest on bank deposit, £4 10s. 5d.; and refundment of income-tax, £26 12s. 3d.

The total expenditure amounted to £516 18s. 1d.; the sum of £472 10s. being granted in relieving fifteen necessitous cases of widows, orphans, and members. Printing and stationery cost £35 19s. 6d.; and postages, &c., £8 8s. 7d. Had it not been for the receipts from donations, which cannot be regarded as a regular source of income, there would have been a deficit at the close of the year of £35 5s. 8d.

In view of the condition of the fund at that period, the Committee decided to issue an appeal for the help of the District Associations affiliated with the Institution; and there was a gratifying response, which the Committee desire cordially to acknowledge. They would, however, very earnestly invite all belonging to the Institution who have not yet become subscribers to have their names placed on the list, thereby enabling the good work which is being done by means of the fund to be adequately maintained. The number of subscribers during the year was 448; the total membership of the Institution of all classes at the end of the year was 1091.

The statement of accounts, duly signed by the Hon. Auditors, is appended to the report, as is also the list of contributors to the fund for the year 1926. The Committee regret to record the death of Mr. S. Y. Shoubridge, who served as one of the Hon. Auditors from the year 1917. Mr. A. E. Broadberry has been appointed in his place.

At the forthcoming annual meeting, Mr. G. S. Frith and Mr. Thomas Goulden retire from the Committee, having completed three years' continuous service. As their successors the Committee have nominated for election Mr. W. E. Caton, of Oxford, and Mr. L. Trewby, of London.

Heat Engine Trials Committee.—A meeting will be held at the Institution of Civil Engineers on Friday, June 10, at 6 o'clock, when the report of the Special Committee on tabulating the results of the heat engine trials will be submitted for discussion. Mr. W. H. Patchell, M.Inst.C.E., Chairman of the Committee, will preside.

Dining on a Liner.—On the occasion of the sixteenth annual conference and general meeting of the British Commercial Gas Association (to be held in Southampton on Monday, Tuesday, and Wednesday, Oct. 3 to 5), the Chairman and Directors of the Southampton Gaslight and Coke Company are entertaining visitors to the conference at dinner; and this function will take place on board one of the cross-Atlantic liners on the Monday evening. It is also hoped that facilities may be obtained whereby visitors may make an inspection of the liner during the afternoon of that day. The provisional order of the programme is: Monday, Oct. 3.—Dinner. Tuesday, Oct. 4.—Business conference opens. Evening: Reception by His Worship the Mayor and the Mayoress of Southampton, followed by a lecture. Wednesday, Oct. 5.—Business conference resumed. Luncheon to the retiring President.

CORRESPONDENCE.

[We are not responsible for opinions expressed by Correspondents.]

Price of Gas Oil.

Sir,—Your esteemed publication could render no more valuable or immediate service to the gas industry than by drawing attention to the excessive and impracticable price for gas oil that is now being exacted from it. At the current price of oil, the cost of a therm produced by the carburetted water gas process is from 50 to 100 p.ct. more than that derived from coal gas manufacture; and the former method is economically disparaged.

As having been personally associated with the inception of carburetted water gas in this country, nearly forty years ago, I should be the last to under-estimate its co-operative and economic value; but it is placed at such a serious disability by the exorbitant price of oil, as to induce its restricted use, as nearly as may be practicable, to that of blue gas, with a consequent cessation of—or reduction in—the use of oil, until more favourable conditions obtain.

In national relations we are at the mercy of the financial incontinence of transatlantic policy; but in industrial matters we are not quite so impotent.

A. M. Paddon.

Brighton and Hove General Gas Company,
77, West Street,
Brighton,
May 28, 1927.

Lady Inspectors.

Sir,—I read with interest in this week's "Journal" the statement of Mr. W. Clark Jackson on the working of their system of inspection in Neath, and I heartily endorse many of his points. In my opinion, however, he is wide of the mark when he states the reasons for employing lady canvassers or inspectors. First, there is no reason why a lady should be able to enter a house at any time of the day any better than a man, because the same objections apply to both—namely, the housewife does not look kindly upon anyone calling upon her before she has got the breakfast table cleared, or immediately before, after, or during any meal, unless, of course, the visitor has been invited by reason of a complaint. Secondly, a male inspector is capable of presenting himself neatly attired if given the same work as the ladies. One can hardly expect a clean pair of hands and a spotless collar after crawling under a dusty counter to disconnect a service, or after handling a greasy cooker perhaps ten times a day. Thirdly, as to tidy work. To my mind, if a man is not tidy in his work, he is not a good workman, because neatness should characterize anything done in the house by an employee of a gas undertaking. I grant there is a difference between men and women; but the same thing applies to the ladies.

Fourthly, as to getting on better with the housewife, I think that in 99 cases out of the 100 she would take more notice of what a male inspector advised than of what a lady suggested; the only exception to this rule being if the advice given was concerning the method of using a cooker. Fifthly, if quietness was essential because of sickness or other cause, I do not think even the ladies could be more considerate than the average man. I have not heard of a complaint being made that the inspector was wearing a pair of clogs, or that he was in the habit of striking the cookers violently with his rule. No, sir, if these are the ladies' sole recommendations, they (the lady inspectors) will not get very far out of Neath.

I would just like to make a few remarks concerning the other points of the system. The supervision is, I think, most important, and should be held by someone who knows that that is his post, and that he will rise or fall according to whether the system is carried on efficiently or not. It must not be looked upon as something he has to do extra. The few pounds spent on this position is, in my opinion, amply repaid.

The idea of each inspector carrying a receipt book will save endless waste of time, and the inquiries as to satisfaction with work done will often enable the supervisor (if the work is carried out by him) to get business which the inspector failed to obtain. It will also act as a check to the inspectors' reports.

The question of "tone" is one that in my own experience should be well considered. This year is not the time to adopt the attitude of "take gas or leave it." It should be: "You will take it, or I will know the reason why."

I have made these few remarks simply because I am interested in the progress of inspection, having had five years' experience as an inspector canvasser with a Gas Company. The above is in my opinion absolutely necessary if any system is to succeed; and success is only possible if everybody concerned feels that he is getting full credit for what he does. Naturally, if this holds, he will strive to do his utmost, thereby becoming more valuable to his employers, and thus to himself in the matter of wages.

Experto crede.

Span Wire Suspension of Street Lamps.

Sir,—In the report in your journal of a paper on "The Problems of Public Lighting by Electricity," by Lieut.-Commander Haydn T. Harrison (see "Journal for March 16, p. 682) which touched upon the public lighting in the City of London, and in which it is asserted that the main streets of the City of London are the best examples of lighting in the world, it should be stated that the lamp lowering gear (both electric and gas) was supplied by us in 1911, and has been in continuous use ever since, with the minimum of cost for maintenance and repairs, and immunity from accidents. The gear consists of our well-known contact suspension gear and a self-sustaining winch by means of which the lamps are suspended in the centre of the road, where the highest efficiency is obtained. Before being lowered, they are traversed along the wire to the side walk, so as not to interfere with wheeled traffic.

The weight of the lamp is only on the hauling rope during operation, and at all other times is supported by the suspension wire, having a breaking strain of 10 tons. The winch is self-sustaining in all positions, without ratchets, pawls, or gear wheels, and will not run back. This avoids accidents.

The London Electric Firm.

Brighton Road,
South Croydon,
May 28, 1927.

Glasgow Corporation Chemical Works Department.

Sir,—In view of the extravagant claims to success which have been made by the Glasgow Corporation Chemical Works Department, I am not surprised that a gas undertaking should have applied to the Corporation for details! The comparative figures which I quoted from "Field's Analysis" speak for themselves, and are not disputed.

Francis Tudsbery.

Lime Wharf Chemical Works,
Falkirk, May 30, 1927.

REGISTER OF PATENTS.

Globes, &c.—No. 269,360.

BIHELLER, S., of Chiswell Street, E.C. 1.

No. 15,359; June 18, 1926.

The patentee claims a globe or shade for use in connection with gas or electric lighting, comprising a semi-opaque body, and a base formed substantially of radial downwardly directed ridges, having each a curved reflecting wall, and a transparent wall, so arranged relatively to one another that rays reflected by the inner surface of the curved wall of one ridge strike the outer surface of the curved wall of the adjoining ridge and are thereby reflected outwardly and downwardly.

The body of the globe is adapted by its curvature and semi-opacity to reflect some of the light rays at a suitable angle on to the base; and the design of the body and ridges is such that light rays proceeding directly and indirectly from the source of light are ultimately reflected outwardly and downwardly.

Gas Ovens.—No. 269,683.

MAIN, R. & A., LTD., and AIRD, K., both of Grosvenor Gardens, S.W. 1.

No. 2252; Jan. 26, 1926.

The object of this invention is to employ a dished lining or equivalent secured to the back or flue side of an oven; such lining forming with the wall of the oven a flue way. The lining does not reach to the bottom, where it is open, and is closed at the top so that the products of combustion will leave near the bottom of the oven and pass up the dished lining.

The lining, if attachable to the wall of the oven, is formed with flanges by which it can be secured to the back of the oven; and such flanges may only extend along a portion of the wall of the lining. Instead of a dished lining, there may be a complete flueway connected to the wall.

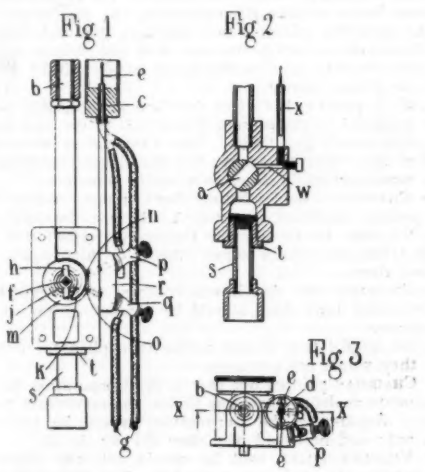
Electrical Gas Lighting Apparatus.—No. 269,635.

KING, W. E., and the GAS METER CO., LTD., both of Kingsland Road, E.2.

No. 1134; Jan. 14, 1926.

This invention relates to electrical gas lighting apparatus of the type wherein a pilot gas jet is ignited electrically and the pilot jet in turn ignites a main gas jet, the pilot jet being afterwards extinguished. It is particularly applicable in connection with gas lamps, the gas supply to which is controlled by clockwork or by a pressure impulse. It may, however, be applied also in other connections—*e.g.*, for lighting gas stoves, &c.

Fig. 1 is a side elevation of a convenient construction; fig. 2 is a vertical cross-section on the line *x*—*x* of fig. 3, which is a cross-section at right angles to fig. 2. Adjacent the pilot jet *c* is a platinum or other wire *d* mounted on suitable supports *e*, *e*, and insulated from the casing of the apparatus. This wire is in circuit with a switch which is adapted to be operated by the clockwork-operated spindle *f*; the arrangement being such that when the circuit is complete the filament *d* is heated by a small dry battery (not shown) connected to the leads *g*, *g*.



Electric Ignition of Pilot Jet.—The Gas Meter Co., Ltd.

The spindle *f* carries a driving member *h* which registers with a slotted annular portion *j* of the cock *a*; and a spring *k* is provided which is adapted to be thrust outwards within the housing *m* of the cock by either end of the driving member *h* as the latter rotates, this outward movement being sufficient to bring the spring into contact with both the insulated contact points *n* and *o*. These contact points are embodied in terminals *p*, *q*, which are screwed into a block *r* of insulating material fastened to the cock casting. A gas connecting pipe *s* is screwed into a socket *t*, itself screwed into the cock casting.

In operation, assuming the clockwork mechanism is just commencing to rotate the cock so as to turn on the gas jet *b*, the first movement of the spindle *f* and cock *a* establishes communication between the pipe *s* and the pilot jet by way of passages *w* and *x*, thus turning on gas to the pilot gas jet. Simultaneously the spring *k* connects together the contacts *n*, *o*, thus completing the circuit which causes the filament *d* to be heated. The pilot jet is thus ignited.

As the clockwork mechanism continues to rotate the spindle *f* and cock *a*, the main gas jet is opened and ignited by the pilot jet. It will be understood that the pilot gas jet is only opened and ignited for a brief interval of time, and the switch is arranged to complete the electrical circuit only momentarily, so as to conserve as far as possible the battery, since only a very brief heating of the filament is required, as this has to ignite only the pilot jet. It is preferred to dispose the wire in the actual part of the pilot gas jet.

Spigot Cocks.—No. 269,987.

SOUTH METROPOLITAN GAS CO., and THOMAS, J. S. G., both of Old Kent Road, S.E. 15.

No. 2678; Jan. 29, 1926.

According to this invention the plug and casing of a spigot cock are so arranged that as the plug is rotated the dimension of the port in the direction at right angles to the movement of rotation is varied, whereby the effective area of the port throughout rotation of the plug (say, from 0° to 90°) is proportional to the angular rotation of the plug.

The claims show that this is effected by arranging that the ports in the plug and casing or casing and plug comprise respectively an opening the development of which is in the form of a right-angled triangle, the base of which is at right angles to the axis of the plug, and a slot the sides of which are parallel to one another and to the axis of the plug; that end of the slot which effects the cut-off being parallel to that wall of the opening which varies the effective area of the port through the plug.

The example illustrated comprises a pointer and dial to indicate the extent of opening of the valve.

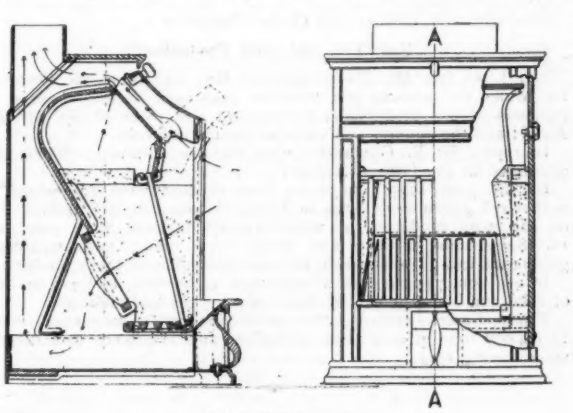
Open Coke Grate.—No. 270,015.

OWENS, J. S., of Victoria Street, S.W. 1.

No. 3441; Feb. 6, 1926.
No. 7000; March 13, 1926.
No. 19,473; Aug. 6, 1926.

This invention relates particularly to grates in which the front is disposed substantially in the vertical plane, and forms the chief or only surface radiating heat into a room.

The stove comprises an outer case having a partition forming the back and top of the firebox; the lower part of the partition being continued downwards by a grate or grid to support the back of the fire. Openings are provided to the flue at the top and bottom of this partition for the products of combustion. Dampers are provided for controlling the passage of the air, whereby the bulk may be caused to pass through the fuel, entering it at the front and passing out through the back grate, or to be diverted directly to the flue, or by which the direction may be reversed so that air may enter the bottom and back of the fire, passing out through the front and top. The arrangement of the dampers is such that the rate of consumption of the fuel shall be capable of being readily controlled so that the same fire may be used for large or small rooms.



Owens' Coke Grate.

It is pointed out that fumes from the coke or other fuel cannot enter the room, and, further, the lighting may be easily and quickly effected with or without use of wood and paper.

The general design of the grate will be understood from the part-sectional front elevation and the section on A-A which we reproduce; and the following special points are extracted from the claims.

The part of the baffle plate in line with the bottom firebars is so arranged as to provide, in conjunction with the ash-pan, a means of adjusting or cutting-off the draught through the back grid.

The upper part of the fire serves as a fuel receptacle, automatically feeding the fire.

The canopy is movable, and serves as an adjustable damper be-

tween the top of the fuel space and the chimney; but a passage may be permanently open for the evacuation of any fumes.

The bars which compose the back of the firebox engage supporting members loosely, so that individual bars may be easily removed.

Production of Water Gas and Coal Gas with Bye-Products Recovery.—No. 270,009.

POWER-GAS CORPORATION, LTD., and RAMBUSH, N. E., both of Stockton-on-Tees.

No. 3152; Feb. 3, 1926.

This invention relates to the production of water gas and coal gas from bituminous fuel with simultaneous recovery of ammonia and tar bye-products.

Hitherto, say the patentees, complete gasification gave a gas of a maximum value of about 370 or 380 B.Th.U. per c.ft.; and though a richer gas can be obtained by oil carburation, if the bye-products are to be simultaneously recovered it is not economical to carburet, because the gas leaving the top of the retort would be much too cool for carburation, and if the gases were adequately heated for carburation, the bye-products would be destroyed.

The present invention aims at overcoming these disadvantages and producing a gas of, say, 350 to 450 B.Th.U. per c.ft., while allowing the recovery of tar and ammonia bye-products to be carried out.

In the manufacture of carburetted water gas in an ordinary generator it has already been proposed to effect the up run with superheated steam and the down run with saturated steam, and to carburet only the down run gas. The present process, however, comprises a down run effected through the water gas generator zone only, and the up run through the water gas generator zone and preliminary distillation zone; and only the down run gas is carburetted by means of oil vapours produced by the sensible and combustion heat of the air blow gas, while the thus enriched down-run gas is mixed with the up-run gas from which the bye-products have been recovered.

The type of generator employed is that in which the distillation zone is superimposed on the water gas zone in one and the same vessel; and it is advisable, though not essential, to employ two or more such generators working in conjunction with a common superheater and carburettor for the purpose of either carburetting the down-run gas or superheating steam by means of which to aid the distillation of the fuel.

To illustrate the result of one method of working, the patentees give the following yields:

Down-run gas, 15,000 c.ft. per ton at 300 B.Th.U. carburetted with 3 gallons of oil per 1000 c.ft.—to give, say, 16,000 c.ft. at 600 B.Th.U.

Up-run gas, 25,000 c.ft. per ton at 300 B.Th.U.

Distillation gas, 10,000 c.ft. per ton at 600 B.Th.U.

In this case it will be found that the total gas yield per ton is 50,000 c.ft. at 450 B.Th.U.

The ultimate heat value of the gas may be varied down to about 360 B.Th.U. by regulating the relative lengths of up and down run and the amount of oil used for carburetting, as well as the supply of superheated steam (if used) to the retort chamber.

APPLICATIONS FOR PATENTS.

[Extracted from the "Official Journal" for May 25.]

Nos. 13,041—13,728.

AUTER, J. P.—"Gas burners." No. 13,104.

CARPMAEL, W.—"Process for absorbing ammonia, &c., from gases." No. 13,272.

I. G. FARBENINDUSTRIE AKT.-GES.—See Carpmael, W. No. 13,272.

JENNINGS, W. F.—"Gas and air compressors." No. 13,082.

LAING, B.—"Distillation of carbonaceous materials." No. 13,410.

LOEWE, S.—"Mechanism for reading meters from a distance." No. 13,105.

LOWE, J.—"Valve-operated mechanism for water-gas plant." No. 13,134.

NIELSEN, H.—See Laing, B. No. 13,410.

OLIVIER, C.—"Atmospheric gas-burners for stoves, &c." No. 13,334.

WARD, T. E.—"Gas fires, &c." No. 13,642.

PARLIAMENTARY INTELLIGENCE.

HOUSE OF LORDS.

Progress of Bills.

Manchester Corporation Bill: Read a second time, and committed.

Matlocks Urban District Council Bill: Read the third time, with the amendments, and passed; returned to the Commons.

Flint, Cleethorpes, Newport Pagnell, and Tiverton Gas Orders: Referred to the Special Orders Committee.

Southgate and District Gas Order: Approved.

HOUSE OF COMMONS.

Progress of Bills.

Greenock Burgh Extension Bill: Reported, with amendments.

Smethwick Corporation Bill: As amended, considered; to be read the third time.

Stoke-on-Trent Corporation (Gas) Bill: Lords amendments considered, and agreed to.

Flint, Cleethorpes, Newport Pagnell, and Tiverton Gas Orders: Copies presented.

Southgate and District Gas Order: Approved.

Gas, Tar, and Coke Production.

Mr. LUNN (for Mr. Parkinson), on May 24, asked the Secretary for Mines the amount and value of coal used in this country for purposes of gas production; the amount and value of the gas produced; and the amount and value of the tar and coke.

In reply, Sir P. CUNLIFFE-LISTER had the following information circulated in the Official Report:

In the year 1925, 17,031,000 tons of coal were carbonized by authorized gas undertakings in Great Britain; 283,818 million c.ft. of gas were produced, of which 231,348 millions were coal gas; 11,398,000 tons of coke and breeze were made, and 194,168,000 gallons of tar. I am unable to state the value of these products.

In addition, 743,000 tons of coal were carbonized, and 419,000 tons of coke and breeze made, by non-statutory gas undertakings.

These figures exclude the production at coke-ovens, where 16,394,000 tons of coal were carbonized and 11,009,000 tons of coke made during 1925.

LEEDS CORPORATION BILL.

This Bill was considered by a Committee of the House of Lords, presided over by Lord Darling, on Monday, May 23. Its main purpose is to extend the boundaries of the City of Leeds to include areas which are already within the Corporation's gas limits. There is a clause defining the Corporation's gas limits as being the whole of the city; and there are also provisions for the purchase by the Corporation of the undertaking of the Crossgates, Halton, and Seacroft Gas Company, Ltd. The Bill has passed the House of Commons. (The provisions of the Bill, and the proceedings before the Local Legislation Committee of the House of Commons, were set out in the "JOURNAL" for Jan. 19, p. 145, and March 23, p. 754.)

The only opposition before the House of Lords Committee was that of the Calverley and Horsforth District Gas Company, who have power to supply, and are supplying, gas in a small area in which the Corporation also have powers to supply, but in which the Corporation are not supplying. The Company asked that the clause in the Bill defining the Corporation's gas limits should be amended to provide that the Corporation should not supply gas in that area without the written consent of the Company. The petition stated that since incorporation in 1868 the Company had met all demands for gas in the area in question, and were capable of meeting all similar demands in the future. Considerable building development was taking place, and at the moment the Company were laying a larger gas main to meet such developments. The area in question formed part of the parish of Adel-cum-Eccup, which was added to the gas limits of the Corporation in 1877; but the Corporation had never supplied there. The nearest gas mains of the Corporation were some distance away; and their powers with respect to the area, therefore, were practically obsolete. It was submitted by the Company that advantage should be taken of the opportunity afforded by the clause in the present Bill re-defining the gas limits of the Corporation to apply the principle that statutory gas undertakers who exercised their powers and performed their obligations were entitled, in the public interest, to a monopoly of supply within their gas limits, subject to proper control.

Mr. W. J. JEEVES, K.C. (for the Corporation), said the areas which it was proposed by the present Bill to add to the City were all within the Corporation's gas limits. The Corporation were not proposing to extend their area of supply; but the clause re-defining the area of supply was inserted in order to simplify reference.

The CHAIRMAN asked whether the Company wanted the Corporation's powers cancelled in respect of the area in question.

Mr. VILLIERS BAYLY (for the Company) replied that the Corporation had had powers to supply there for fifty years, but had not exercised them.

The CHAIRMAN said that it was contrary to the principle laid down by Parliament that there should be competing gas undertakings in any one area.

Counsel agreed that if any authority applied for duplicate powers to-day they would not get them.

The CHAIRMAN pointed out that if the Corporation had not inserted the clause to re-define their gas limits, the opposition would not have arisen. Apparently the Corporation would be happy to have it struck out; and he asked why they did not do so.

Mr. VILLIERS BAYLY said he would ask the Committee not to strike out the clause, but to amend it. The Company had not made their application before, because the Corporation had not given them the chance by inserting such a clause.

The CHAIRMAN asked why the Corporation should not buy the Company's mains in the area concerned.

Mr. JEEVES replied that the Corporation were quite prepared to do that.

The CHAIRMAN said the Company ought not to expect a monopoly price—because they had not a monopoly—but a fair price for what they had to sell.

The parties then withdrew for the purpose of consultation; and subsequently it was announced that they had substantially agreed.

The terms of the agreement were that the Corporation should purchase, and that the Company should sell, so much of the Company's undertaking as was within the area common to the gas limits

of both, with the exception of Horsforth L.N.E.R. Station. It was explained that the boundary of the area passed right across the station; and it was proposed, therefore, that the whole of the station should remain in the Company's area. The property agreed to be sold to the Corporation was to include all mains and pipes actually laid and all meters actually *in situ* at the date of the agreement, but not gas cookers or other fittings (other than meters), which should remain the property of the Company. The price to be paid was £2000, and the purchase was to be completed by a date to be agreed or determined by arbitration, but in any event not later than Aug. 1, 1930. Until the completion of the purchase, the Company were to carry on that part of the undertaking which they had agreed to sell, but should not incur expenditure of a capital nature without the consent of the Corporation. Such capital expenditure incurred with the consent of the Corporation was to be repaid by the Corporation to the Company on completion of the purchase. It was also provided that if it should be found possible to repeal by this Bill the powers of the Company for the supply of gas in the area in question, the Company should consent thereto. If not, the Company were to consent to repeal by any Bill or Provisional or Special Order hereafter promoted by the Corporation for that purpose, at the Corporation's expense. Disputes were to be referred to arbitration.

The CHAIRMAN expressed the view that the parties had come to a reasonable agreement, which must be far more to the convenience of the city and of the district than anything which could have resulted from prolonged litigation. The terms were fair and just.

LEGAL INTELLIGENCE.

DUNDALK GAS-WORKS VALUATION.

Appeal by the Company.

At a recent sitting of the Dundalk Circuit Court, Judge DOYLE, K.C., heard an appeal brought by the Dundalk Gas Company against a valuation of £565 upon the gas-works, Manager's residence, and foreman's residence, and £400 on easements, making a total of £965. The Commissioners for Valuation were the respondents.

Mr. PRICE, K.C., and Mr. C. S. CAMPBELL (instructed by Messrs. Dickie, Coulter, & Hamill) appeared for the appellants; and Mr. T. S. M'CANN, K.C., and Mr. GEO. O'CONNOR (instructed by Mr. J. B. Hamill, State Solicitor), for the Valuation Office; and Mr. JAMES M'COURT, for the Dundalk Urban Council.

Mr. PRICE, in opening the appeal, said there was a gleam of human interest behind this case. The electricity works, which were run in Dundalk in rivalry with the Gas Company, were owned by the Urban Council, who had done everything they possibly could to prevent the Gas Company from expanding in legitimate competition. The occupants of artisans' dwellings in Dundalk, on several occasions, desired to instal gas for cooking and lighting. In 1915 they were prohibited from taking gas. As a great concession, they were allowed gas for cooking; but no artisan was allowed to have it for light. In 1925 the Gas Company again tried to get leave; and the owners of the electricity concern would not allow them to do so. In addition, the Railway Company, who would be a legitimate customer of the Gas Company, had a stringent contract with the Urban Council, so that they were precluded from taking gas for light and power. His Lordship would see that at the present time the Gas Company had a great uphill fight; and, in addition, there was the fact that the electricity undertaking was rated at £440 per annum, while the Company's valuation was suddenly raised to £965. Calculated on the rates for the present year—which were roughly 15s. in the pound—it would mean that the Company were paying £390 more in rates than the rival concern. In 1915 the rating was £950. From 1919 the figure had been £685, being the amount fixed on appeal; and then an opportunity was taken recently, by reason of the putting in of some new retorts to replace those which had worn out, to change the valuation to £965.

Mr. *John H. Allen* (Rating Surveyor) said he had made a valuation of the Dundalk Gas-Works, going on the published returns. He arrived at £315 as the rateable value of the undertaking; and he believed this a fair valuation.

In cross-examination, witness stated that the net profits of 1919 were £2308, and in 1925 £1549. In 1919 the total gas sold was 34,030,000 c.ft., in 1925 41,484,000 c.ft., and in 1926 42,262,000 c.ft.

Mr. PRICE pointed out that under the Statute the maximum dividend was 10 p.ct., and the Company paid 8 p.ct. only.

Mr. *George Airth* (Engineer and Manager of the Company) said, in evidence, that there had been a 23 p.ct. drop in the amount of gas manufactured in 1925 as compared with 1911. A sum of £4000 expended on mains to the Great Northern Railway Company was practically lost, as there was now a contract under which they were prevented from supplying gas to the Railway Company until the latter had consumed a certain amount of electricity. The Railway Company used gas for certain purposes—such as taking paint off wagons. Electrical competition commenced in 1913. They were not allowed to supply gas, except for cooking purposes, to the Urban Council artisans' dwellings. Between 80 and 90 tenants applied to have gas put in on one occasion; but this was not permitted. On another occasion 57 tenants made a similar application, which was refused. The cost of labour had gone up in some cases by 200 p.ct. since 1914. The cost of material had increased by 87 p.ct. In 1914 they were making about as much gas as they were now. Formerly when the gas was installed in a house the Gas Company supplied a meter, and the occupier did the rest. Now the Gas Company had to put in the whole installation; and this involved a considerable extension of tenants' capital outstanding.

Mr. M'CANN asked what amount was spent on improvements between 1919 and 1925.

Witness said he foresaw that the war was going to last long; and he stocked a hundred retorts and the necessary bricks at the works. These, which could not have been obtained afterwards from the Government, were utilized for repairs. In 1919 they spent £49 10s. on retorts; and in 1920 £146 18s. In 1924 and 1925 the amount actually expended on the new retort installation, &c., was £8840, with contingencies. There was £160 spent on supervision, bringing the amount up to £9000. Of that they had yet to pay £1987.

Mr. M'CANN: In other words, you have already paid £7000. Was that all paid out of current revenue?

Witness: Yes. The Council and the Company, he added, were on most friendly terms.

Mr. *H. Lisney* (Valuer) said he took the gross receipts as £13,978, and from this he deducted £7343 for working expenses. That brought the net receipts to £6635. There were further deductions; and he arrived at a net rateable value of £1075. By reason of the new machinery, enormous economy was effected. On the whole, he considered the valuation put upon the premises fair and reasonable.

Cross-examined, witness said he did not know that Waterford, which produced about the same amount of gas as Dundalk, was valued at £340 a year, or that Queenstown was valued at £310. In Dundalk the plant was most up-to-date and economical.

Judge DOYLE, in the course of a considered judgment, remarked that the method of valuation which was chiefly before the Court during the hearing of the appeal was that which was based on the ascertainment of gross annual takings, and the segregation and application of these to the various purposes to which a hypothetical tenant, whether individual or company, would find it necessary or feel it justifiable to apply them, working down at last to a residual figure as the proper figure to offer by way of annual rent to his hypothetical landlord. This method was, of course, open to many criticisms; no rent was ever, in fact, so ascertained. In practice the rent to be paid was one of the many factors with reference to which the price of the article to be produced or sold was fixed, so as to pass that rent, as well as every other overhead charge, or outgoing, on to the purchaser. In practice, too, the greater a tenant's business profits were, the higher the rent which he could afford to pay; but in the case of this hypothetical tenant, every pound that he was allowed to put to the account of his own profits came automatically out of his supposed landlord's profits. However, this method was one of several competitive methods, and had been recognized and acted on in many cases with apparently satisfactory results. He would endeavour, therefore, to apply it in this appeal. After discussing the details of the case, he stated that he had arrived at the conclusion that the rateable value of the buildings was £306, and of the easement £217—total £532. Each side would pay its own costs.

STRATFORD GASFITTER'S COMPENSATION CLAIM.

£250 for Injury from a Gas Explosion.

In the Bow County Court on Monday, May 23, before Judge Snagge, Walter Henry Rogers, of 37, Hotham Street, Stratford, a gasfitter, was the applicant in a Workmen's Compensation Act claim against the Gas Light and Coke Company for an accident which occurred in Windsor Terrace, Beckton, on June 6, 1925. The applicant was about to enter a private dwelling house for the purpose of carrying out some work when, owing to the alleged negligence of one of the Company's servants, there was an explosion. The front door of the house was blown out, and hit the applicant, with the result that he sustained a fracture at the base of the skull, besides having several ribs injured. He had been earning £4 a week, and was paid 30s. a week compensation for total incapacity until Oct. 8, 1926, when the respondents decided that he was fit to do light work, which the applicant denied.

Mr. Kimber appeared as counsel for the applicant, and Mr. Shakespeare, barrister, for the respondents.

Evidence was given on behalf of the applicant that he had been unable to do anything whatever, owing to his state of hysteria. It appeared that some time back he was so bad that he disappeared temporarily from home. He was traced with difficulty, and brought back on an ambulance. His wife did not consider him fit for any sort of work.

Medical evidence was given to the effect that isolated treatment was about the best thing that could be given him, and that recently all that the doctor had given him were sedatives to enable him to sleep at night. There was no doubt that the man still felt pain with his head, as he winced when it was touched at the top. The doctor, in cross-examination, however, admitted that there was nothing really better for the man than to get back to light work if he could do it, as he would constantly improve. However, he did not think that he could do it.

For the defence, Sir James P. Stewart, K.C.M.G., C.B., M.D., said he examined the man on April 26 of this year, and found that he had a fracture of the skull on the left side without compression. The history was that he had had concussion which had caused him to be unconscious, and to forget the incident of the accident.

Sir George Hastings agreed with the last witness.

Judge Snagge suggested that the parties might reasonably have a conference with reference to the matter; and it was decided that this should take place. On resuming, it was announced that, subject to his Honour's sanction, the respondents had agreed to pay the applicant £250 in full settlement of all claims.

Judge Snagge concurred, and an award was entered for £250, and costs.

MISCELLANEOUS NEWS.

GAS REGULATION ACT APPLICATIONS.

SPECIAL ORDERS.

Ipswich Gas Light Company.

To increase the borrowing powers of the Company from one-third to one-half of the amount of the capital raised.

Shirebrook and District Gas Company.

To extend the limits of supply; to authorize the charging of differential prices for gas in the extended limits; to empower the Company to raise additional capital; to authorize agreements between the Company and other gas undertakings; and for other purposes.

Southend-on-Sea and District Gas Company.

To vary the standard rate or rates of dividend on certain capital; to enable the Company to charge for gas on a thermal basis; and for other purposes.

Walton-on-Thames and Weybridge Gas Company.

To authorize the Company to utilize scheduled land for gas purposes.

DECLARATIONS OF CALORIFIC VALUE.

Hoylake and West Kirby Urban District Council.—500 B.Th.U. (Oct. 1).

New Hedon Gas and Coke Company, Ltd.—450 B.Th.U., in substitution for 500 B.Th.U. (Sept. 1).

INQUIRY AT COLWYN BAY.

On May 17, Mr. J. F. Ronca, Gas Administrator to the Board of Trade, accompanied by Mr. W. Spencer, held an inquiry at the Colwyn Bay Council Chamber, into an application by the Council for powers to supply gas in three parishes outside their urban area, and to erect a gasholder at Glan Conway, situated in the area of the Conway Rural Council.

Statements were made by Mr. James Amphlett (Clerk) and Mr. James Smith (Gas and Electrical Engineer), from which it appeared that the Council sought power to extend their area of supply so as to include the parishes of Penrhyn (with the exception of that portion covered by the Conway Corporation Gas Extension Order of 1926) and the parish of Glan Conway. It was in the last-named parish that the Council proposed to acquire land for the purpose of erecting a holder, which would be fed by a high-pressure gas main. The numbers of houses adjoining the principal routes of supply were: Penrhyn, 450; Glan Conway, 240. The Llangystenin area was the connecting link between the two other parishes, and with the introduction of public utility supplies there was every likelihood that this parish would develop with them, and the connecting link would form the feed for any developments in that area.

The Urban Council had obtained powers for the supply of electricity within the three parishes; and the granting of powers under the Gas Order would make the powers for gas and electricity coincident in respect of the area of supply. The charges for gas, even with the suggested increase in Clause V. to consumers outside the area, would then be equal to the lowest charges for any area on the North Wales Coast.

The Council were carrying out very extensive alterations and additions to the existing gas-works, and would have plant capable of giving a largely increased supply within the present urban area as well as to the proposed additional areas.

Mr. Amphlett gave the terms on which the vendor was prepared to sell a piece of land for the purpose of the site at Glan Conway or to release another parcel of land which he leases. In the original application power was sought to manufacture gas, but that part of the application was now withdrawn.

A discussion arose between Mr. Samuel Chantrey, J.P. (one of the churchwardens of the parish of Glan Conway), and Mr. Amphlett regarding a strip of land through which the pipes will have to pass in order to connect with the holder. It transpired that doubt existed as to who owned the land; but Mr. Amphlett said that this point had been settled. The Council would acquire the strip. Replying to the Inspector, Mr. Amphlett said it was uncertain whether a right of way existed over that strip. If such was the case, it would be all the better for his Council. The other two plots would not be purchased if the Board of Trade refused the Order asked for.

Mr. Smith said that the larger of the two plots was suitable in all respects for the storage purposes.

Mr. Chantrey said that in view of the assurances given that no manufacture would be carried on, he withdrew his objection.

Mr. RONCA: We shall make an Order stipulating that there shall be no manufacture. Of course, this will not prevent the Council from coming along at some future date for power to manufacture.

Mr. F. Phillips (Diocesan Secretary, representing the Diocese of St. Asaph and the Church in Wales) said he was present to protect the interests of the Rector. There was no desire to stand in the way of necessary improvements in the parish, but the Church authorities felt it to be their duty to protect their own property and interests as far as possible. If the power to make gas at Glan Conway was struck out of the Order, then the objections of the authorities he represented would be removed to a large extent. At the same time, he urged that the site adopted should be the smaller one, because it was on a lower level, and therefore less objectionable to the occupiers of the rectory. It was true that the smaller piece was sloppy on the surface, but he had been informed that at a little distance below the level there was a hard rock which sloped down to the River Conway. He suggested that when the holder was erected it should be surrounded by a screen of trees, so that it might not mar the appearance of one of the most beautiful valleys in Wales.

Mr. Hugh Parry (Town Clerk) objected to Colwyn Bay supplying gas to that portion of Llangystenin recently added to Conway but not yet supplied by his Corporation.

After further discussion it was arranged that the question of boundaries should be discussed between the two authorities with a view to an amicable settlement.

No other objections were offered.

FRASERBURGH TOWN COUNCIL DISCUSS NEW GAS-WORKS.

At a special meeting recently the Fraserburgh Town Council discussed a scheme for the provision of new gas-works, the estimated cost of which, according to Mr. L. Hislop, of Peebles, is £20,000.

Provost BROWN, who is Convener of the Gas Committee, said that the expenditure on the old works, which were very congested, had for the past eight years been about £700 a year. There was no margin of reserve, and a breakdown in any of the retorts during the winter would be serious. The strain on the producing capacity was so great that it was often necessary to pass the gas into the mains without going through the holders. The present Gas Committee had long felt that some drastic change was necessary before conditions could be so improved that Fraserburgh would have a reliable supply of gas at a reasonable price. The Committee had satisfied themselves of the impossibility of carrying out such permanently satisfactory improvements on the present site, and had decided to recommend the adoption of a site belonging to the Committee in Mid Street. The adoption of this site involved the scrapping of the present works. Mr. Hislop estimated the cost of a complete works with up-to-date carbonizing and purifying plant and an additional gasholder at approximately £20,000. It was expected that the new works would produce up to 300,000 c.ft. per 24 hours, as against 185,000 c.ft. at present. An estimate of the probable revenue and expenditure showed that it ought to be possible with the new works to produce gas at 2s. per 1000 c.ft. less than under present conditions.

Provost BROWN then moved—

> That the matter be remitted back to the Gas Committee with power to obtain estimates for new works on the Mid Street site on the lines proposed by Mr. Hislop, which estimates shall be submitted to the Town Council for consideration and decision.

Councillor J. M. THOMSON seconded.

GAS AND LONDON HOUSING DEVELOPMENTS.

Interesting Experiments in the Hendon District.

Experiments of interest are being conducted by a well-known firm of London and Liverpool builders and contractors in the erection of 1200 subsidy houses near Hendon, in the Willesden Urban District Council's area. The chief experiment will be that of installing a gas hot-water circulator in every house, in place of the usual boiler heated from the living-room fire. This will provide hot water for both the kitchen and the bathroom, and will render the use of geysers unnecessary. The heaters to be fitted are "B.T.U." hot-water circulators made by John Wright & Co., of Aston, Birmingham. The hot water is automatically kept at the correct temperature by the operation of a thermostatic control; and the builders are satisfied that from the points of view of both economical equipment and service the experiment will justify itself. This is believed to be the first occasion on which gas hot-water circulators have been used throughout any considerable housing scheme.

In addition to the gas circulators, the houses will be equipped with the latest type of gas cooker, and each will have two gas fires, while an additional point will be laid on to enable an extended use of gas equipment.

Another important London building development foreshadowed in the near future is that of the London County Council at Becontree, where it is proposed to erect 2221 flats and houses at a cost of approximately £1¼ million. This estate will eventually cover 147 acres, and house approximately 10,000 people. The first houses will be finished about October. The scheme is divided into 341 five and four roomed houses, and 721 three-roomed houses. In the majority of cases, the tenants will be provided with both gas cookers and coal ranges, the latter being fixed in the living-room.

Results at Chorley.—The Chorley Town Council, on May 26, decided to carry forward a deficit of £482 on the gas undertaking for last year. Alderman T. Heald said the deficit was due to the high price paid for coal during the coal stoppage. The Gas Committee had hesitated before increasing their charges by 6d. per 1000 c.ft. last December. The increase had been for one quarter only, and the pre-stoppage prices were again in operation. The loss of £482 compared with a profit of £1369 for the previous year.

Gas on Housing Estates.—The four great London County Council estates at Becontree, Morden, Watling, and Downham will, when fully developed, provide 36,000 houses. Dr. J. S. Owens, the meteorologist, recently calculated that if each house burned coal in one grate for ten hours every day the new estates would create 7200 tons of soot a year. The L.C.C., however, are alive to the desirability of encouraging smoke abatement, and in most houses gas cookers are installed. No fewer than 10,000 gas cookers are now in use on the Becontree estate, and of these 2000 have been bought within the past year.

PRIMITIVA GAS COMPANY OF BUENOS AIRES, LTD.

Annual General Meeting.

The Twenty-Sixth Annual Ordinary General Meeting of the Company was held on Tuesday, May 24, at Winchester House, Old Broad Street, E.C.—Mr. P. A. COOPER (the Chairman) presiding.

The SECRETARY (Mr. Robert Grant) read the notice convening the meeting and the report of the Auditors; and the report of the Directors and the statement of accounts for the year ended Dec. 31 were taken as read.

The CHAIRMAN, on rising to move the adoption of the report and accounts, said: It is with great regret we have to tell you that since the report was issued Mr. Ogilvie has died. He had a long connection with this Company and its predecessors, having been a Director or Chairman for over forty years. We have lost a genial colleague, whose sound judgment and knowledge of the Argentine were always of great value to us. We have invited Viscount St. Davids to fill the vacancy; and he has accepted. To you who are connected with affairs in Buenos Aires, Lord St. Davids needs no introduction; and I am sure shareholders will join with the Board in congratulating themselves in securing so able and distinguished a Director.

BIG INCREASE IN NET PROFITS.

I venture to think that few of you have been connected with a gas company which in 1926 (a year of great difficulty) can record an increase in consumers and gas sales, an increase in the quality of gas, a decrease in the sale price, and an increase in net profits of over 70 p.ct. Yet such is the report we have to make to you to-day. In the revenue account, you will notice an all-round increase in receipts, except in chemicals. The actual receipts from chemicals have risen, too; the lower figure being due to a different method of keeping the accounts. On the other side, there are some economies and some increased expenses. We are making savings in some directions; but our increased activity naturally means greater cost in others. One item we have increased materially is depreciation. In the profit and loss account, you will notice we charge a proportion of London expenses to Buenos Aires. This relates to supply and shipment of plant and stores. The balance-sheet changes are, I think, quite clear. We have spent £97,000 net on additions to plant. The contingency reserve, now shown separately, amounts to £60,000, and the renewals accounts to £150,000. We recommend that, except for £11,000 odd which we carry forward, the whole of the balance of profits should be carried to reserve for contingencies and renewals. But you may say: "Why do you carry such large sums to reserve, when you have already made considerable provision in the operating revenue account?" Well, I went into this matter fully last year. We believe we have been conservative. We may have done more than is needed in a normal year; but we are satisfied that this is the quickest way back to prosperity. Last year I dealt at length with the financial position. I told you then that we had made our arrangements with the debenture stockholders for dealing with the properties as a whole, and had made our plans for provision of fresh capital when required. Since then our credit has much improved, and we have been able to make temporary arrangements on very reasonable terms.

THE YEAR'S WORK.

And now a word about our year's work. Immediately after the general meeting last year I went to Buenos Aires, and spent a considerable time there. I am going again in a few days. If I were to attempt to tell you in detail all that the General Manager and the Local Committee have done in the past twelve months, it would take me a long time. The year has been one of great and increasing activity. As we tell you in the report, it has been a year of reorganization. A period of reorganization is always a difficult one, and usually not immediately productive of results. But in spite of this drawback, we show progress. An advertising campaign, supported by the supply of gas of first-rate quality, is already having its effect. The following table gives a comparison of 1926 with 1925, and the first quarter of 1927 with the corresponding quarter of 1926:

Percentage Increases over Previous Period

—	1926.	1927.
Consumers	8·0	8·7
Gas sales	5·3	9·15

These sales increases would have been greater but for the fact that we increased the calorific value of the gas. Unaccounted-for gas fell from 21·7 p.ct. in 1925 to 18·4 p.ct. in 1926, and 18 p.ct. to date in 1927. Installations and sales of appliances are going up steadily. Our chemical department records an all-round improvement in sales. We have made some progress with the South Barracas Company. Concessions in two important districts having been obtained, plans for development are being studied. The new installation of Glover-West vertical retorts was put into operation in September. So far, our engineers report that results have come up to expectations. We are very pleased; and our thanks are due to the contractors, not only for the excellence of the plant, but for the very satisfactory manner in which the work was carried out. When we met you last year, we were able to report that we had taken steps to safeguard ourselves against the effects of the coal strike. Later in the year the situation became far more acute; but with the exception of one or two high freights, we escaped unharmed. I dread to think what would have happened to us if we had suffered like some of the great gas undertakings. While on the subject of the coal strike, I should like to thank our suppliers of plant and stores who helped us through that trying time. They were relentlessly pursued by Mr. Grant and his shipping department; and, with perhaps one exception, they all "came up to scratch."

ONLY A BEGINNING.

But now let me say this: Though we may have done a lot, though we show increases all round and improved results, we are only beginning. We are making plans and laying foundations. We are trying to get our organization up to a high standard of efficiency. To this end, many of the departments are being overhauled. New methods, new men, new machines are being introduced. But when everything has been said and done, when buildings and systems have been made to fit their purpose, when the latest devices in machines and fixtures have been installed, the strength of a business rests with the staff and its relations with the public. That is to say, it rests with the human element. And so we are on the look-out for men. But the difficulties of language and customs in our case make the demand greater than the supply. There is only one way to meet it. We must train our own men. We have not the facilities of the great companies in England; but we are beginning in a small way. Last year we had the pleasure of seeing in London Sir Manuel Montes de Oca, Chairman of our Local Committee. It gave the Board the opportunity of going very thoroughly into many important matters with him. Sir Manuel also used his visit to see at first hand the wonderful place which gas holds in the lives of the British people; and he returned to Buenos Aires convinced of the great expansion possible there. In Buenos Aires Sir Manuel has given us much of his valuable time; and Mr. Wilson has devoted himself with characteristic energy to the work. I am sorry to say Mr. Bernard Browne has had to leave us; but he does so knowing that his old Company is on the way to recover its former prosperity. From what I have told you, you can see that the General Manager and his chief men, working closely with the Local Committee, have tackled a big task. I am sure you will wish to send a message of congratulation and thanks to Mr. Stevenson and his staff. They are putting forth immense efforts, which are already beginning to show results. Our thanks are also due to Mr. Grant and his London staff. I should like, too, to thank gas companies in England for their kindness to us. We want ideas, we want other people's experience, we want help; and I can tell you that they have held out a helping hand most willingly.

DEMAND FOR GAS INCREASING.

And now to sum up. Last year was one of change and reorganization, a period of plans and foundations. This period is not over; and I hope shareholders will still exercise patience. Nevertheless, improved results are coming, and our position is steadily growing stronger. In a cablegram just received, the figures show that our progress this year is as satisfactory as last year. The cable ends: "Demand for gas and coke steadily increasing despite depression in commerce."

Col. H. LEROY-LEWIS, C.B., C.M.G., D.S.O., formally seconded the resolution.

The CHAIRMAN, in reply to questions put by shareholders, said the position in regard to unaccounted-for gas was a difficult one; but while the figures appeared to be enormously high, this was due largely to the fact that the Company was the result of the amalgamation of five companies, and in some streets there were five sets of gas mains. Then, again, half their business was lost during the war. If the unaccounted-for gas was taken in comparison with the total length of mains—many miles of which were unproductive—the figure would not seem so serious. It was, however, hoped from year to year to bring the percentage down. The Company had lost very nearly all their gas lighting; and practically the whole of the new business in the past year had been in gas for cooking, water heating, and to a certain extent for industrial purposes. It was hoped to do more in the industrial field. As had often been stated the Company owed a debt of gratitude to Mr. Bernard Browne. When Mr. Browne finished-up with them, he said he was quite satisfied that he was leaving the undertaking in good hands. The Company had influential representatives in Buenos Aires; and every year they were getting into better relationship with the Municipality.

The resolution for the adoption of the report and accounts was then unanimously carried.

Mr. Cooper was re-elected a Director, on the proposition of Mr. FRANK H. JONES, seconded by Col. LEROY-LEWIS, both of whom spoke highly of the great services rendered by the Chairman to the Company.

The Auditors (Messrs. G. A. Touche & Co.) were re-appointed; and the proceedings closed with a vote of thanks to the Chairman, Directors, and staff.

REDUCTIONS OF PRICE IN SCOTLAND.

In Bo'ness the price has been reduced by 1od. The charge is now 4s. 7d. per 1000 c.ft. for ordinary meters and 5s. 1d. for slot meters.

In Dunfermline the basic rate is now 3s. per 1000 c.ft., or 8·37d. per therm—a reduction of 1s. per 1000 c.ft.

The Falkirk Town Council have decided on a reduction of 3d. per 1000 c.ft. as from the May survey. The price now approximates 4s. per 1000 c.ft. for ordinary users and 4s. 2d. for prepayment consumers. The reduction is equal to the increase of last November; but the September increase of 6·02d. still remains as a legacy of the coal strike.

The Lennoxtown Gas Company have lowered the price by 1od. per 1000 c.ft.

The Leslie Gas Company have reduced the price from 7s. 6d. to 6s. 3d. per 1000 c.ft.

The Kirkintilloch Town Council last week decided to reduce the charge by 1s. 6d. per 1000 c.ft. The price is now 2s. 1d. for power, 2s. 3d. for ordinary consumers, and 2s. 4d. for prepayment meters.

The Montrose Gas Company, Ltd., have reduced the price of gas by 1s. per 1000 c.ft.

In Musselburgh the price has been reduced by 9d. per 1000 c.ft., which brings the charge back to the pre-strike price.

In Prestonpans there is to be a reduction of 1od. per 1000 c.ft.

BELFAST GAS UNDERTAKING.

In his annual report, Mr. J. D. Smith, the Engineer and Manager to the Belfast Gas Committee, states that at the beginning of the coal strike it was hoped that the price of gas would not have to be altered; but as time went on, and the price of coal rose steadily, it was found to be impossible for them to carry on at the rate then charged; and the price was increased from 2s. 4d. to 2s. 8d. net, from Oct. 1, 1926.

They started the year with a balance of £26,352, and the gross profit on the manufacture and sale of gas and residuals was £108,866 —a decrease of £46,661, as compared with the previous year. After adding rents received from the Cromac Street property, and deducting the cost of Stoves Department and interest on capital and other charges, they had £28,128 at credit of profit and loss account. From this had to be deducted £21,338 for revenue contribution to capital expenditure; £21,344 for stock redemption accounts; and £1233 for sinking fund and interest for purchase of old abattoir site—leaving a balance to be carried forward to debit of profit and loss of £15,788.

The gas made showed an increase on the previous year of almost 251 million c.ft., equal to 6·55 p.ct. Some of this increase was due to the heavy demand during the coal strike, but more to the expanding use of gas for all purposes. The coal carbonized was 158,585 tons, a decrease of 8411 tons; but the consumption of oil showed an increase of 688,865 gallons, equal to over 42 p.ct. The water gas plant had to be used not only to make quantities of gas, but also to increase the calorific value of the gas produced from poor foreign coal.

That the demand for gas was still growing was shown by the fact that during the year they fitted 871 ordinary meters and 754 automatic meters—a total of 1625. The total meters now in use amounted to 94,264. The increase in sales through ordinary meters was 95 million c.ft., and through prepayment meters 150 millions. The increase in revenue was £83,427 and in expenditure £139,019.

The Chemical Department again showed good results; the net revenue being £77,268—an increase of £5010. The Stove Department had a deficit of £603. They did not count on making a profit on the sale of stoves, being content to sell appliances at the lowest rate, and take their profit in the sale of gas. Sales were increasing from year to year. The total number of stoves now in use in Belfast was 79,425; the increase during the past year being 6818. The prospects for the future were bright, as the popularity of gas for heating and cooking was growing apace.

Mr. Smith concludes his report as follows: I beg to recommend that on and after our next survey of meters (commencing on June 16) the price of gas be reduced by 5d. per 1000 c.ft. gross, or 4d. per 1000 c.ft. net, bringing the price to 2s. 4d. net for lighting and 2s. net for power and manufacture in the Belfast area, and that 30 c.ft. per penny be given to consumers through prepayment meters, instead of 28 c.ft., as at present.

COAL TRADE REPORTS.

From Our Own Correspondents.

NORTH-EAST COAST.

Difficulties are increasing week by week, and the trade is inclined to agree with the politicians in their recent pronouncements that another crisis is approaching. The ascertainments governing the wages payable in Durham and Northumberland for June, based on April results, show that there is again a large deficiency to be made up by the owners in order to pay the minimum rate of wages. The loss to the owners has been steadily increasing month by month; and it cannot be hoped that May results will have proved even as good as April.

The present position is deplorable. Demand from the Continent is extremely slack, and competition keen in connection with such inquiries as reach this market. In all parts of the two counties idle time is now common. Except in the cases of a few collieries which enjoy an exceptional position, quoted prices are little indication of the true state of affairs, and for prompt orders exporters can generally discount them.

Northumberland screened steams are weakly held at about 14s. 6d. f.o.b., a very low price when the smalls only fetch about 10s. A few of the best Durham gas coals can still hold out for about 17s. f.o.b., but 16s. 6d. is more generally the quotation. Second-class gas are nominally 14s. 6d. to 15s., but large quantities are obtainable for prompt shipment at 14s., and some brands have taken even less than this. Good unscreened coking is offering at 14s.

Demand for coke is slow, but prices are holding-up fairly steadily. For gas coke, 19s. to 20s. f.o.b. is asked.

YORKSHIRE AND LANCASHIRE.

Gas undertakings are now coming into the Yorkshire and Lancashire coal market for forward contracts, and are considering what may be regarded as rather tempting offers.

With the continued drop in the sales of domestic fuel, collieries are passing through a very anxious time, with no immediate sign of any improvement. Shorter hours are being worked and many pits may have to close down altogether.

Industries still rule on the quiet side, and with exports practically *nil* the situation is becoming rather acute.

The following are the Humber bunker and export prices, f.o.b. usual shipping ports: South Yorkshire—Hards, Association, 16s. 9d. to 17s.; screened gas coal, 16s. 6d. to 17s.; washed trebles, 16s. 6d. to 17s.; washed doubles, 16s. 6d. to 17s.; washed singles, 16s. to 16s. 6d.; washed smalls, 14s. 9d. to 15s.; rough slack, 13s. 9d. to 14s. 3d.; smithy peas, 18s. 6d. to 19s. 6d. per ton. West Yorkshire—Hartley's (f.o.b. Goole), 15s. 6d. to 16s.; screened gas coal, 16s. 6d. to 17s.; washed trebles, 16s. to 16s. 6d.; washed doubles, 15s. 6d. to 16s.; washed smalls, 14s. 3d. to 14s. 9d.; unwashed trebles, 15s. 3d. to 15s. 9d.; unwashed doubles, 15s. to 15s. 6d.; rough slack, 13s. 3d. to 13s. 9d.; coking smalls, 13s. 6d. per ton. Derbyshire and Nottinghamshire—Top hards, 18s. to 19s.; washed trebles, 18s. to 19s.; washed doubles, 17s. 6d. to 18s.; washed singles, 16s. 6d. to 17s.; washed smalls, 14s. 9d. to 15s.; unwashed doubles, 15s. to 16s.; rough slack, 13s. 3d. to 14s. per ton. Yorkshire, Derbyshire, Nottinghamshire—Screened steam coal, 15s. to 16s.; gas coke, 21s. to 25s.; furnace coke, 18s. to 19s. per ton.

MIDLANDS.

Though output has been further curtailed it is still in excess of consumptive demand. As there is next to no stocking, some of the collieries are offering spot lots at extremely low prices. Coal ordinarily classified as steams has changed hands at as low a price as 12s. in exceptional cases. The principal customers now are the hawkers. There is very great disparity between the prices realized by collieries and those paid by the consumer for low grades. Values of high-quality house coals are well maintained. This is almost the only department not subject to marked irregularities.

The industrial demand remains very sluggish. Slacks are bought up to the full tonnage produced. This, of course, is because of the short supply, not the activity of demand. Prices are steady, 8s. 6d. to 11s. 6d. indicating the general range. Beans make about 12s. and D.S. nuts 14s. to 15s. There is not much real movement with regard to gas coal, though soundings are being taken.

Blast-furnace coke is in plentiful supply now at 16s. for good medium grades. A great deal of the current output is going to the furnaces under contract at 21s. and 22s. With foundries buying very little pig iron, a further fall of 2s. 6d. to 5s. has taken place in that commodity.

TRADE NOTES.

Coke Handling.

The latest folder of Messrs. Drakes, Ltd., of Halifax, which is entitled "Coke" is most attractive; the illustrations being wonderfully effective.

"T.I.C." Tar Plants for Wisbech and Buckie.

The Woodall-Duckham Vertical Retort and Oven Construction Company (1920), Ltd., have recently received orders for "T.I.C." tar treatment plants at Wisbech and Buckie. The plant for the Wisbech Lighting Company will have a capacity of 8 tons of crude tar per 24 hours, and that for the Buckie Gas Light Company, Ltd., Banff, of 10-12 tons of crude tar per 24 hours.

"From Dustcart to Dynamo."

This is the title of a booklet, published by Woodall-Duckham Vertical Retort and Oven Construction Company (1920), Ltd., describing the "W-D" refuse destructor. The amount of steam raised per ton of refuse varies with the calorific value of the material burned. From a pound of average town refuse, approximately 1½ to 5 lbs. of steam can be raised. The clinker produced is an excellent material for road-making, and for the manufacture of artificial paving stones, &c.

Analysis of Coal and Its Bye-Products.

Messrs. Baird & Tatlock (London), Ltd., of 14-15, Cross Street, Hatton Garden, E.C. 1, have published a new catalogue dealing with the analysis of coal and its bye-products, which contains much useful information extracted from "Methods of Analysis of Coal," Physical and Chemical Survey of the National Coal Resources, No. 7 (H.M. Stationery Office). The firm have been manufacturing scientific instruments for a long time; and their catalogues contain the latest apparatus as devised by eminent scientific workers.

Gasholder Contract for Messrs. Firth Blakeley, Sons, & Co., Ltd.

The Haslemere and District Gas Company has shown a remarkable advance during the past few years. Seven years ago the annual make of gas was less than 40 million c.ft., and the consumers numbered 1800. Last year the output had reached 64 millions, and the consumers numbered 2600. With the growing demand, it was decided that additional storage was necessary. The Company decided to have a holder erected of 250,000 c.ft. capacity; and on the recommendation of the Engineer, Mr. R. E. Taylor, the choice fell on one constructed of "Armco" wrought-iron sheets. The contract has been let to Messrs. Firth Blakeley, Sons, & Co., Ltd., Church-Fenton, Leeds, who have undertaken to have it completed by the end of November.

Woodall-Duckham Verticals for Skegness.

On the recommendation of their Engineer, Mr. F. Young, the Skegness Urban District Council Gas Department have placed an order with the Woodall-Duckham Vertical Retort and Oven Construction Company (1920), Ltd., for an installation of Woodall-Duckham continuous vertical retorts. The plant will consist of six 53-in. retorts with a total carbonizing capacity of approximately 27 tons of coal per day, erected on a reinforced concrete raft, and pile foundations for 12 retorts. Overhead storage bunkers of 48 hours' capacity, a steam engine driven lift, and two coke gantries are included. In one of the gantries a bar screen with breeze hopper underneath is provided for feeding screened coke into railway wagons. The other gantry is for feeding coke into the open yard storage.

Hemel Hempstead Preference Capital.—Messrs. A. & W. Richards are, on behalf of the Directors, offering for sale by tender £14,900 of 6 p.ct. irredeemable preference stock in the Hemel Hempstead District Gas Company. The minimum price at which stock will be issued is £93 per £100; and tenders must be sent to the firm at 37, Walbrook, E.C., not later than Friday morning, June 10. There is a steadily increasing demand for gas throughout the Company's area. The sales last year were 13 p.ct. above those of the preceding twelve months.

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KIRKE PATENT WASTE HEAT BOILERS

If YOU have heat going to waste, we can turn it into profit just as we have done for some of the largest Gas Companies, Collieries and Steel Works in the country.

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CURRENT SALES OF GAS PRODUCTS.

The London Market for Tar, Tar Products, and Sulphate.

LONDON, *May* 30.

The market for pitch continues steady. There is a moderate amount of activity for next season's delivery; and the price is called 75s. to 80s. per ton, f.o.b. makers' works.

Creosote is steady and unchanged at 8¾d. to 9d. per gallon.

Tar spirits are quiet; pure toluole being about 1s. 10d. to 1s. 11d. per gallon, pure benzole about 1s. 8d. per gallon, and 95/160 solvent naphtha 1s. 5d. to 1s. 6d. per gallon.

Tar Products in the Provinces.

May 30.

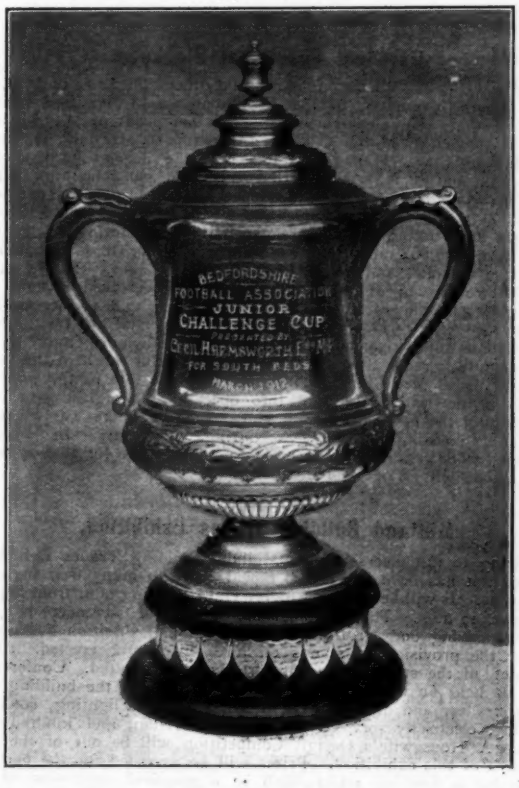
The average values of gas-works products during the week were: Gas-works tar, 54s. 6d. to 59s. 6d. Pitch—East Coast, 70s. to 75s. f.o.b. West Coast—Manchester—67s. 6d. to 74s. 6d.; Liverpool, 70s. to 75s.; Clyde, 72s. 6d. to 75s. Benzole, 90 p.ct. North, 1s. 5d. to 1s. 6d.; crude, 65 p.ct. at 120° C., 1s. 0¼d. to 1s. 0¾d., naked, at makers' works; 50-90 p.ct. naked, North, 1s. 6d. to 1s. 7d. Toluole, naked, North, 1s. 6½d. to 1s. 7½d., nominal. Coal-tar crude naphtha, in bulk, North, 7½d. to 8d. Solvent naphtha, naked, North, 1s. 2½d. to 1s. 3½d. Heavy naphtha, North, 1s. to 1s. 1d. Creosote, in bulk, North, liquid, 7½d. to 7⅝d.; salty, 7¼d. to 7½d.; Scotland, 7½d. to 7⅝d. Heavy oils, in bulk, North, 9d. to 9¼d. Carbolic acid, 60 p.ct., 2s. 6d. prompt. Naphthalene, £11 to £14; salts, £5 to £5 10s., bags included. Anthracene, "A" quality, 2½d. per minimum 40 p.ct., purely nominal; "B" quality, unsaleable.

Manchester District Tar Prices.

The average prices realized for the sale of tar in the Manchester district, according to the sliding-scale, for the months of February and March were £4 6s. 9·27d. and £3 14s. 5·41d. respectively.

A FOOTBALL ACHIEVEMENT.

The past season has been a record as far as the history of the Davis Gas Stove Company, Ltd., is concerned, inasmuch as four League teams have been successfully run, each player being employed by the Company. The first team, an entirely new combination, has



the best record, and brings honour to the Club by winning the Bedfordshire Junior Challenge Cup (illustrated here) and being runners up in the Bedfordshire and District League, Division II., at the first attempt.

Shirebrook Gas Company Apply for Board of Trade Order.—The Shirebrook and District Gas Company, at a special meeting held on May 25, decided to apply to the Board of Trade for an Order empowering them to supply gas in an extended district east of the existing area, including Edwinstowe and Ollerton, and other parishes in the Southwell Rural District Council. The new district extends eastwards to the gas supply area of the Newark Corporation. In view of the many and diverse purposes for which gas is now used, the proposed supply cannot fail to prove a great boon to residents in this district.

CONTRACTS OPEN.

Engine and Exhauster.

The Committee in Charge of the Clonmel Corporation Gas Works are inviting tenders for an engine and exhauster. [See advert. on p. 591.]

Tar and Ammoniacal Liquor.

Tenders are invited by the Loughborough Corporation Gas Department for the purchase of their surplus tar and ammoniacal liquor. [See advert. on p. 591.]

Coal.

The Malvern Urban District Gas Council are inviting tenders for the supply of gas coal. [See advert. on p. 591.]

Tenders are invited by the Mansfield Corporation Gas Department for the supply of screened gas coal. [See advert. on p. 590.]

The Middleton Corporation Gas Department are inviting tenders for the supply of coal. [See advert. on p. 591.]

Tenders are invited by the Peterborough Gas Company for the supply of screened gas nuts. [See advert. on p. 590.]

Increased Gas Sales in Blackburn.

The Blackburn Corporation Gas Committee have recommended the Town Council to reduce the price of gas from 3s. 9d. to 3s. 6d. per 1000 c.ft. The annual report of the Department for the year ended March 31 shows a gross income of £236,296; the total expenditure being £190,682, leaving a balance of £45,614. Compared with the previous year, there was an increase in revenue of £16,777 on gas accounts alone, equal to 85 million c.ft. of gas sold. The income from residuals was less by £3000 owing to coke, &c., being used for gas production following the strike. The heaviest increase in expenditure is under the heading of coal, which cost £37,000 extra; but there has been a satisfactory set-off by the increase in gas sales, and a reduction of £6000 in distribution costs. After meeting interest and sinking fund charges of £52,148, there is a net deficit of £3985 to appropriation account. The report adds that Blackburn was one of the few towns that did not increase the price of gas during or after the strike. The total quantity of gas sold was 1,146,680,000 c.ft.—an increase of 103,090,000 c.ft., or 8·99 p.ct., over the previous year. The approximate number of cooking and heating appliances has increased to 54,031, compared with 49,957 last year.

Excellent Results at Blackpool.

Notwithstanding all the industrial and other difficulties of 1926, the final figures presented to the Blackpool Gas Committee recently showed that the Department made a net profit of £17,845 during the year ended March 31 last. In his report, Mr. John H. Chew, the Engineer and Manager, states that the disposable balance is £22,013; and it is proposed that this sum shall be allocated as follows: Rate relief, £10,000; reserve fund, £6849; and carry-forward, £5154. The disorganization due to the coal strike involved the gas undertaking in an extra expenditure amounting to £37,667. Coal cost £36,862 more than estimated; and extra cost of handling, purchase of coke, and wages made up the balance. On the credit side, however, appear the following items: Increased revenue due to higher gas charges to ordinary consumers, £13,824; increased receipts for coke, £11,333; and increased receipts for tar, £8796. These items total £33,960, so that the adverse balance caused by the coal dispute is reduced to £3707. The successful result of the year's working, says Mr. Chew, is in great measure due to the improvements at the works, brought into operation early last year, and particularly the new retort plant and purifiers. There was a greatly increased consumption of gas during the year. In 1925-26, 926,692,000 c.ft. were sold; the corresponding figure for 1926-27 being 992,198,000 c.ft.

Midland Building Trades Exhibition.

Owing to the success of the Midland Building Trades Exhibition of 1925, it has been decided to repeat it, with many new features, this year. It will be held at Bingley Hall, Birmingham, from Sept. 5 to Sept. 17 next. The Birmingham Chamber of Commerce is again the organizing body, and the Council of the Exhibition has undertaken the provision of stands on hire, fitted and erected. About 75 p.ct. of the stand space has already been allotted. Conferences will be held on the most recent developments in the building and allied trades, and discussions will take place on lighting, cooking, heating, electricity services, hot water provision, and kindred subjects. A Housewife's Design Competition will be one of the new features of this exhibition. Prizes will be awarded for the best designs for a dwelling which shall be a practical expression of the housewife's desire for "The house I want to live in." Remarkable business was done through the Midland Building Trades Exhibition in September, 1925; and it has been suggested in influential quarters that the two national building exhibitions should continue to alternate—the London display in the spring of one year, and the Midland Exhibition at Birmingham in September of the following year. The Lord Mayor of Birmingham (Alderman A. H. James, J.P.) is the President, and many architectural, engineering, builders', sanitary, civic engineers', and other associations and institutions have allied themselves with the exhibition. There will be an important public works and road-making section, in which the experience and technical knowledge regarding road construction throughout the country will be concentrated. The General Manager, Birmingham and Midland Building and Allied Trades Exhibition, at the Chamber of Commerce, Birmingham, is in charge of the allocation of stands (London Office: 65, Chancery Lane, W.C. 2).

"South Met." Reduces Price of Gas.—The South Metropolitan Gas Company propose to reduce the price of gas from 10d. to 9½d. per therm from the reading of the meters at midsummer.

Reduction by the South Suburban Gas Company.—The South Suburban Gas Company have decided to reduce the price of gas by 1d. per therm, to take effect from the end of the present quarter.

Reduction at Pontypool.—The Pontypool Gas and Water Company have reduced the price of gas by 4½d. per 1000 c.ft. as from July 1. The new charge will be 5s. 0½d. per 1000 c.ft., as against 4s. 10½d. pre-strike.

Reduction at Oswaldtwistle.—At a meeting of the Oswaldtwistle District Council, on May 26, the price of gas to domestic consumers was reduced by ½d. a therm from the June quarter, bringing the price to 8d. a therm.

Gas Light and Coke Company's Reduction.—The Gas Light and Coke Company announce a further reduction in the price of gas of 0·8d. per therm, or 4d. per 1000 c.ft., to take effect as from the reading of the meters in June. This reduction brings the price back to the figure prevailing before the coal stoppage.

Oxford Gaslight and Coke Company.—The tenders for the £20,000 additional consolidated ordinary stock, and £6551 5 p.ct. perpetual debenture stock which Messrs. A. & W. Richards offered on behalf of the Directors of this Company were opened on May 26. The tenders for the former ranged from £145 down to the minimum of £137, and for the latter from £97 down to the minimum of £95 per £100. Both issues were considerably over-subscribed.

Results at Evesham.—In a report of the Gas Committee presented to the Evesham Town Council last week, it was stated that the cost of the coal dispute to them was £6400. The revenue account showed a total expenditure of £32,814, and receipts amounted to £32,840. The balance of £26 had been placed to the fund for depreciation of plant. The Committee, the report stated, had come to the conclusion that the financial position had sufficiently improved to warrant their recommending an increase in the discount from 5 p.ct. to 15 p.ct. The report and recommendation were approved.

Whessoe Foundry and Engineering Company, Ltd.—In their report for the year ended March 31 (which will be submitted to the seventh annual general meeting on June 2), the Directors remark that the period under review covers the whole time of the general strike and the coal stoppage. These inevitably interfered with the business of the Company; and it is therefore gratifying that the profits have been well maintained. The accounts show a net profit for the year (after deducting depreciation, &c.) of £16,014, to which has to be added £4835 brought forward. The payment of a dividend of 10 p.ct., less income-tax, will leave a balance of £4849 (subject to Directors' commission on profits).

Gas Exhibition at Ivybridge.—Opening a five days' gas exhibition at Ivybridge recently, Mr. H. Blight, Chairman of the local Urban Council, said that the extended use of gas appliances was bound to diminish the production of smoke and dirt, and that the public would always welcome new appliances which added to their comfort and convenience. The Devon Gas Association, Ltd., who were promoting the exhibition, as a public utility company deserved the support of the people of Ivybridge. Apart from the benefits conferred on permanent residents, visitors to holiday resorts required prompt attention and good service, and modern gas appliances were the best means to ensure this. The Devon Gas Association controlled nine undertakings similar to that at Ivybridge, and in seven of these they had to meet electrical competition. In every town, however, the presence of electricity had little or no effect on gas undertakings. The demand for gas for cooking and heating purposes had developed enormously; and it was mainly for that reason the Association were holding the exhibition. The use of the gas appliances displayed was explained to the visitors by Mr. R. J. Rew (Managing Director of the Association), Mr. G. Lane (Secretary), Mr. E. House, and Mr. R. F. Rew; while cookery lectures were delivered by Miss Marjorie Morris, Diplomée of the National Training School of Cookery.

The Darwen Gas Committee have decided to reduce the price of gas by 3d. per 1000 c.ft. from July 1.

From the Shanghai Gas Company, Ltd., we have received a copy of "China in Chaos," which contains a brief outline of the history of the foreign concessions, with examples of China's disruption and failure to observe her obligations.

Messrs. Settle, Speakman, & Co., Ltd., have changed their London office from 90, Lower Thames Street, to 90, Cannon Street, E.C. 4. Their telephone number will be: City 1426 (3 lines); and the telegraphic address: "Abbotship, Cannon, London."

The Birmingham Municipal Bank Committee, in their report to the City Council, on May 31, state that during the past year a start has been made with the collection of gas accounts at the various offices of the Bank. The scheme only came into force in October, 1926, and during the six months 12,238 accounts were dealt with, and the sum of £21,286 14s. 3d. was received.

Speaking at a lecture in connection with the Health Week inaugurated by the Colwyn Bay Urban Council, in which the Lighting Committee of the Council joined, Mr. Edward Wilson (Chairman of the Lighting Committee), who presided, said the exhibitions during the week were held with a view of creating and developing a greater interest in the promotion of health. It was all to the good that Colwyn Bay should advertise its health-giving properties; but there was nothing that could not be better. "What part, then," asked Mr. Wilson, "does gas play in this question? Dr. Saleeby's lectures have provided the answer. The abatement of smoke can to a very large extent be accomplished by the use of gas."

STOCK MARKET REPORT.

DEPRESSED conditions prevailed on the Stock Exchange last week. The efflux of gold, and the consequent abandonment of any hope of an immediate reduction in the Bank Rate, caused investment securities to sag. When the destination of the gold was disclosed, markets reacted; and the very necessary break with the Soviet Government also assisted matters. On balance, however, high-class securities were perhaps slightly lower.

The New South Wales 5½ p.ct. Conversion Loan was successfully floated; and having regard to the financial conditions, the subscription of £6,000,000 in cash was satisfactory. The price opened at ¼ premium. There are many new issues announced, among which is the Bradford Corporation Loan, £2,000,000 5 p.ct. at 100¼.

The Gas Market suffered from the general depression; and while transactions were fairly numerous, the only change of importance in the quotations was the rise of one point in the Tottenham 3½ p.ct. stock. The practice of issuing accounts yearly tends to minimize variations in values, and no material change in quotations can be expected. The fact that most, if not all, of the London and Suburban Companies are reducing the price of gas at Midsummer is a good omen.

The Watford Gas Company are offering by tender £30,000 "B" stock at a minimum price of £95 p.ct. The dividend for the last four years was £6 10s. p.ct., so that the yield is £6 16s. 10d. p.ct. The Hemel Hempstead Company also are offering £14,000 6 p.ct. preference stock at a minimum price of £93, at which price the yield is £6 9s. p.ct.

The following transactions were recorded during the week.

On Monday, Alliance and Dublin 85½, 85¼, Bournemouth 5 p.ct. 12⅛, "B" 12⅛, Commercial 4 p.ct. 87½, 88, 3½ p.ct. 86, 86⅜, 87½, 3 p.ct. debenture 56, Continental Union 34, European 6½, 6⅝, 6⅞, Gas Light and Coke 86¾, 87, 87¼, 87⅛, 87½, 3½ p.ct. maximum 60¾, 4 p.ct. preference 76½, 3 p.ct. debenture 59⅜, Imperial Continental 137½, 139, Primitiva 14s. 1½d., 14s. 3d., 14s. 4½d., 14s. 6d., 14s. 9d., South Metropolitan 100⅜, 101½, South Suburban 5 p.ct. 103, Tottenham "B" 92. Supplementary prices, Crowborough 73, 73½.

On Tuesday, Bournemouth 5 p.ct. 13 1/16, Commercial 3½ p.ct. 87½, Continental Union 34, Gas Light and Coke 87, 87⅛, 87½, 3½ p.ct. maximum 60¾, 4 p.ct. preference 77¼, 5 p.ct. debenture 100⅞, Imperial Continental 137⅜, 137½, 138½, Primitiva 14s. 3d. 14s. 6d., South Metropolitan 100½, Tottenham 3½ p.ct. 92, Wandsworth, Wimbledon 5 p.ct. 101½. Supplementary prices, Reading 5 p.ct. maximum 83½.

On Wednesday, Commercial 3½ p.ct. 87½, Continental Union 34, 35, Gas Light and Coke 87, 87¼, 87½, 3½ p.ct. maximum 60¾, 4 p.ct. preference 76½, 3 p.ct. debenture 58⅝, 59, 5 p.ct. debenture 101, Imperial Continental 138, Newcastle 3½ p.ct. 74½, Oriental 100½, 101½, Primitiva 14s. 6d., Sheffield "C" 98, South Metropolitan 100½, 101, 101½, South Suburban 5 p.ct. 103. Supplementary prices, Newport (Mon.) 5 p.ct. 80, 5 p.ct. debenture 84, 84½, Rochester, Chatham 80⅜, 81½.

On Thursday, Alliance and Dublin 4 p.ct. debenture 67, British 7 p.ct. preference 115, Continental Union 36, Gas Light and Coke 87¼, 87½, 87⅝, 4 p.ct. preference 77¼, 3 p.ct. debenture 59, 5 p.ct. debenture 100½, Montevideo 85, 87, *ex* div., Primitiva 14s. 3d., 14s. 6d., 14s 7½d., South Metropolitan 101, 101½, South Suburban 5 p.ct. 104½, Uxbridge 5 p.ct. 87½, 5 p.ct. preference 87½. Supplementary prices, Brighton and Hove 6 p.ct. preference 97, 97½, 5 p.ct. debenture 95, Hartlepool 5 p.ct. maximum 84, Rugby 6 p.ct. preference 95, 95½.

On Friday, Cape Town 7⅝, 8½, Commercial 4 p.ct. 88½, European 6¾, 7, Gas Light and Coke 87⅛, 87¼, 87⅜, 3½ p.ct. 60⅞, 4 p.ct. preference 76½, 3 p.ct. debenture 59⅜, Imperial Continental 138, 139, Maidstone 3 p.ct. debenture 53½, Primitiva 14s. 4½d., 14s. 7½d., South Metropolitan 101, 101½, Uxbridge 5 p.ct. 88, Supplementary prices, Eastbourne 5 p.ct. "A" 125, 125½.

In Lombard Street it was reported that there were just sufficient funds to go round, and while 3½ to 3¾ p.ct. was paid for renewal of old loan, new business was arranged at from 3⅝ to as high as 4½ p.ct. While it was expected that the Government would have to pay a higher rate for Treasury Bills, the actual average rate, £4 6s. 7·88d. p.ct., surprised the market. This is nearly 9s. 3d. p.ct. more than the previous week, and actually higher than the average for the two weeks prior to the reduction in the Bank Rate on April 21. Discount rates hardened in consequence.

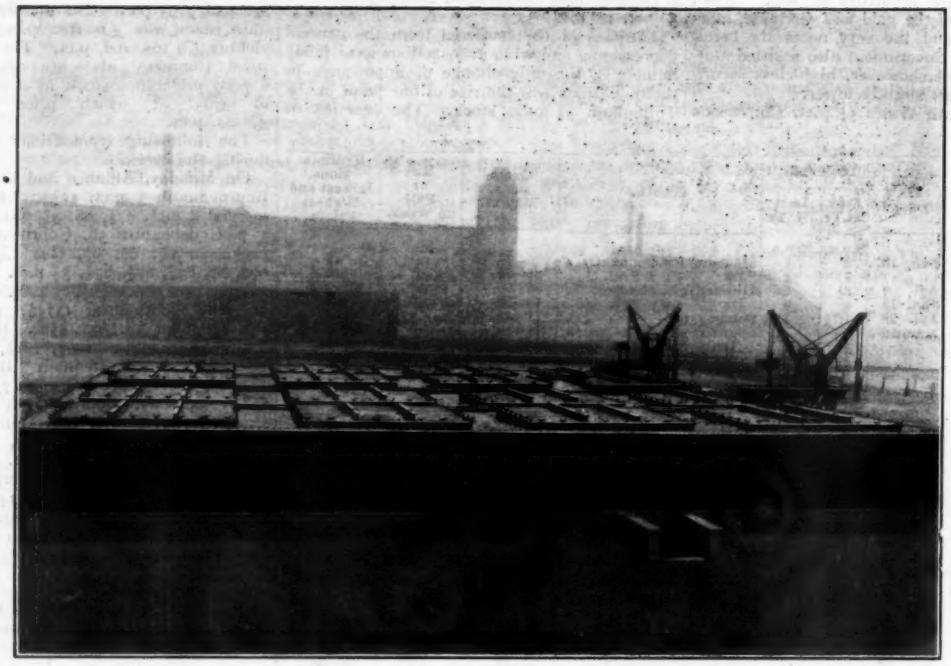
In the Foreign Exchange Market the dollar-sterling remained steady at 4.85 25/32. Italian lire rallied after dullness, and at 88 1/16 was practically unaltered. Of the gold exchanges, Belgian at 34.96, German at 20.50, and Austrian at 34-50½ were all slightly higher. The French rate remained at 124, and Spanish pesetas improved to 27.66.

Silver was weak owing to Chinese selling, and the price declined 3 3/16d. to 26½d. per oz. There were no gold movements, and the price remained nominally at 84s. 11½d. per oz.

The Bank Rate is 4½ p.ct., to which it was reduced from 5 p.ct. on April 21. Bankers' deposit rates are 2½ p.ct. The deposit rates of the discount houses are 2½ p.ct. at call and 2¾ p.ct. at notice.

Issue.	Share.	When ex-Dividend.	Dividends. Prev. Hf.Yr	Dividends. Last Hf. Yr.	NAME.	Quotations. May 27.	Rise or Fall on Week.	Transactions. Lowest and Highest Prices.
£			%p.a.	% p.a.				
171,978	Stk.	Feb. 10	5	5	Aldershot 5 p.c. max. C.	70—73	..	..
322,992	,,	,,	4	4	Do. 4 p.c. Pref.	66—71	..	..
1,561,868	,,	Apl. 7	6½	7	Alliance & Dublin Ord.	88—86	..	85½—85½
274,000	,,	Jan. 13	4	4	Do. 4 p.c. Deb.	65—68	..	67
800,000	1	Apl. 28	1/7½	1/7½	Bombay, Ltd.	1—1½	..	..
170,000	10	Mar. 10	8½	8½	Bournemouth 5 p.c.	12½—13½	..	12 13/16—13 1/16
600,050	10	,,	7	7	Do. B 7 p.c.	11½—12½	..	12⅝
275,000	10	,,	6	6	Do. Pref. 6 p.c.	10½—11½	..	..
80,000	Stk.	Jan. 13	3	3	Do. 3 p.c. Deb.	53—56	..	..
162,025	,,	,,	4	4	Do. 4 p.c. Deb.	75—78	..	..
307,900	,,	—	—	—	Brighton & Hove 6 p.c. Con.	102—107	..	..
341,800	,,	—	—	—	Do. 5 p.c. Con.	90—95	..	..
1,227,500	,,	Feb. 24	5	5	Bristol 5 p.c. max.	89—90a	..	..
885,000	,,	Mar. 24	6	7	British Ord.	106—109	..	..
100,000	,,	Dec. 30	7	7	Do. 7 p.c. Pref.	112—117	..	115
120,000	,,	,,	4	4	Do. 4 p.c. Red. Deb.	75—80	..	..
160,000	10	May 26	6	6	Cape Town, Ltd.	7½—8½†	..	7⅝—8½
100,000	10	Apl. 28	4½	4½	Do. 4½ p.c. Pref.	6—7	..	..
180,000	Stk.	Dec. 30	4½	4½	Do. 4½ p.c. Deb.	68—73	..	..
666,860	,,	Feb. 24	6	6	Cardiff Con. Ord.	99—103	..	..
327,880	,,	Dec. 30	7½	7½	Do. 7½ p.c. Red. Deb.	100—103	..	..
127,150	,,	Feb. 24	5	6½	Chester 5 p.c. Ord.	85½—91½b	..	..
79,165	1	Apl. 28	†2/-	†2/-	Colombo Ltd. Ord.	26/—28/-	..	..
24,495	1	,,	1/4½	1/4½	Do. 7 p.c. Pref.	20/—22/-	..	..
221,490	1	Apl. 7	1/9½	1/9½	Colonial Gas Assn. Ld. Ord.	24/6—26/6	..	..
178,900	1	,,	1/7½	1/7½	Do. 8 p.c. Pref.	20/—22/-	..	..
1,513,280	Stk.	Feb. 24	6½	6½	Commercial 4 p.c. Cap.	86—89	..	87½—88½
480,000	,,	,,	5/8/4	5/8/4	Do. 8½ p.c. Cap.	85—88	..	86—87½
475,000	,,	Dec. 30	8	8	Do 8 p.c. Deb.	56—59	..	56
859,660	,,	Sept. 30	‡2	‡1	Continental Union, Ltd.	32—37	+2	34—36
200,000	,,	Mar. 10	7	7	Do. 7 p.c. Pref.	79—82	..	..
797,660	,,	Mar. 10	6½	6½	Croydon sliding scale	96—99	..	..
408,100	,,	,,	5	5	Do. max. div.	77—80	..	..
494,870	,,	Feb. 24	6	9	Derby Con.	104—106c	..	..
55,000	,,	Dec. 30	4	4	Do. Deb.	73—75c	..	..
329,800	,,	Mar. 10	5	5	East Hull Ord. 5 p.c.	76—80	..	..
80,000	,,	Dec. 30	5	5	Eastbourne 5 p.c. Deb.	92—97	..	..
1,009,180	10	Mar. 24	‡3	‡3	European, Ltd.	6¾—7½	+½	6¾—7
13,147,480	Stk.	Feb. 10	5/1/4	5	Gas Light & Coke 4 p.c. Ord.	86½—88½	..	86¾—87⅞
2,600,000	,,	,,	3½	3½	Do. 3½ p.c. max.	59—61	..	60¼—60¾
4,127,920	,,	,,	4	4	Do. 4 p.c. Con. Pref.	76—78	..	76¼—77½
1,608,880	,,	Dec. 30	3	3	Do. 3 p.c. Con. Deb.	58—60	..	58¾—59⅜
181,815	,,	,,	—	6	Do. 6 p.c. Br'tf'd Rd. Db.	100—105	..	..
1,649,770	,,	,,	—	5	Do. 5 p.c. Red. Deb.	99—101	..	100½—101
48,000	,,	—	7½	7½	Do. 7½ p.c. Ilford Deb.	..	..	..
88,800	,,	Mar. 10	6¾	6¾	Hastings & St L. 5 p.c. Conv	90—92	..	..
128,740	,,	,,	5¾	5¾	Do. 3½ p.c. Conv.	67—72	..	..
70,000	10	Apl. 28	†10	†10	Hongkong & China, Ltd.	12—18	..	..
172,800	Stk.	Mar. 10	5	5	Hornsey Con. 3½ p.c.	67—69	..	..
1,916,000	,,	May 12	10	10	Imperial Continental Cap.	137—141	..	137½—139
323,130	,,	Feb. 10	3½	3½	Do. 3½ p.c. Red. Deb.	69—71	..	..
195,342	,,	Mar. 10	6½	6½	Lea Bridge 5 p.c. Ord.	92—97	..	..
3,145,907	,,	Feb. 24	5½	5½	Liverpool 5 p.c. Ord.	84—85b	..	84½
600,000	,,	Sept. 30	7	7	Do. 7 p.c. Red. Pref.	102—104b	..	..
185,726	,,	Feb. 24	9	8	Maidstone 5 p.c. Cap.	110—115	..	..
68,480	,,	Dec. 30	3	3	Do. 3 p.c. Deb.	52—57	..	58½
75,000	5	Dec. 9	†7	†7	Malta & Mediterranean	5½—5¾	..	..
841,920	Stk.	May 26	†5	†7	Montevideo, Ltd.	85—90*	..	85—87
2,061,814	,,	Feb. 24	5	5	Newcastle & Gateshead Con.	75—76d	..	..
960,989	,,	,,	4	4	Do. 4 p.c. Pref.	68—69d	..	..
691,705	,,	Dec. 30	3½	3½	Do. 3½ p.c. Deb.	68—69d	..	..
131,786	,,	—	—	—	North Middlesex 6 p.c. Con.	91—93	..	..
800,000	,,	Apl. 28	9	7	Oriental, Ltd.	97—102	..	100½—101½
186,180	,,	Dec. 30	7¼	7¼	Plym'th & Ston'house 5 p.c.	105—110	..	..
414,490	,,	Feb. 24	7½	7½	Portsm'th Con. Stk. 4p.c. Std.	100—105	..	..
286,782	,,	,,	5	5	Do. 5 p.c. max.	76—79	..	..
3,289,909	1	—	—	—	Primitiva Ord.	14/—15/-	..	14/1½—14/9
262,200	100	Dec. 1	4	4	Do. 4 p.c. Red. Deb.	85—87	..	..
600,000	Stk.	Jan. 27	4	4	Do. 4 p.c. Red. Deb. 1911	70—72	..	..
494,958	,,	Dec. 30	—	4	Do. 4 p.c. Cons. Deb.	70—72	..	..
180,000	10	Mar. 24	6	6	San Paulo 6 p.c. Pref.	7½—7¾	..	..
135,000	50	July 1	5	5	Do. 5 p.c. Red. Deb.	47—50	..	..
270,000	Stk.	Mar. 24	5½	5½	Sheffield A	100—102c	..	..
413,968	,,	,,	5½	5½	Do. B	100—102c	..	..
1,047,000	,,	,,	5½	5½	Do. C	100—102c	..	..
90,000	10	May 26	4	6	South African	4—6*	..	..
6,609,895	Stk.	Feb. 24	5	7	South Met. Ord.	100—102	..	100½—101½
1,395,445	,,	Jan. 13	3	3	Do. 3 p.c. Deb.	57—60	..	..
784,000	,,	Mar. 10	6½	6½	Do. 6½ p.c. Red. Db.	99—101	..	..
91,500	,,	Feb. 24	8½	8½	South Shields Con.	104—106d	..	..
1,949,795	,,	Mar. 10	6½	6½	South Suburban Ord. 5 p.c.	103—106	..	103—104½
268,897	,,	Dec. 30	5	5	Do. 5 p.c. Deb.	93—96	..	..
647,740	,,	Mar. 24	5	5	South'mpton Ord. 5 p.c. max.	74—77	..	..
121,275	,,	Dec. 30	4	4	Do. 4 p.c. Deb.	68—73	..	..
250,000	,,	Feb. 24	7	7	Swansea 7 p.c. Red. Pref.	100—102	..	..
200,000	,,	Dec. 30	6½	6½	Do. 6½ p.c. Red. Deb.	102—104	..	..
180,000	,,	Feb. 24	7½	7½	Tottenham District A 5 p.c.	105—110	..	..
883,275	,,	,,	6½	6½	Do. B 3½ p.c.	90—93	+1	92
150,000	,,	,,	5½	5½	Do. 5½ p.c. Pref.	97—100	..	..
181,255	,,	,,	4	4	Do. 4 p.c. Deb.	72—75	..	..
358,351	,,	Dec. 9	4	4	Tynemouth Con. and New Uxbridge, Maidenhead, & Wycombe 5 p.c.	71—72d	..	..
197,394	,,	Mar. 10	6½	6½	Do. 5 p.c. pref.	85—90	..	87½—88
88,220	,,	,,	5	5	Do. 5 p.c. Maidenh'd	83—88	..	87½
91,800	,,	,,	6½	6½	Wandsworth, Wimbledon, and Epsom—	83—88	..	..
80,000	,,	Mar. 10	8½	8½	Wandsworth A 5 p.c.	120—125	..	..
365,666	,,	,,	7	7	Do. B 3½ p.c.	102—107	..	..
433,525	,,	,,	5/19/0	5/19/0	Do. C and New	90—95	..	..
862,000	,,	,,	6¾	6¾	Wimbledon 5 p.c.	98—103	..	101½
92,000	,,	,,	7¼	7¼	Epsom 5 p.c.	103—108	..	..
88,416	,,	Dec. 30	3	3	3 p.c. Deb.	54—57	..	..

Quotations at:—a.—Bristol. b.—Liverpool. c.—Nottingham. d.—Newcastle. e.—Sheffield. * Ex. div.
† Paid free of income-tax. ‡ For year.



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CONTENTS.

EDITORIAL NOTES.

Scotland First 619
Coke Testing 619
The Sign of the Blue Star 620
Local Authorities and Workers' Freedom . 621
Situation in the Coalfields 621
"Stale Investments" 621
One of the Birthday Honours—British Motor Spirit—Another Electrical Campaign—Gas Oil Prices—Unification in Street Work—Coal Output—Employment 622

Personal 623
Obituary 623
Electricity Supply Memoranda 623
Forthcoming Engagements 624
Advertising Gas in the Big Stores—Newcastle and Gateshead Gas Company Prove its Value 625
Combustion of Carbonic Oxide at High Pressures 626
Cottrell Electrical Precipitation Process . . 626
Relative Ignitibilities and Combustibilities of Domestic Cokes—Tests on the Possibilities of a "Brazier and Weighing Method." By T. F. E. Rhead, M.Sc., F.I.C., and R. E. Jefferson, M.Sc., A.I.C. 627
Uses of Gas in Hospitals and Institutions. By W. H. Becket 631
Measurement of Mean Spherical Candle-power—Photometric Integrators . . . 633
Metals Research Association—Improving Engineering Materials 634
Benzole-Heater and Gas-Main Deposits . . 634
Examination of the Products of Combustion from Coal Gas Flames—Further Work by Hamilton Davis, B.Sc., and Harold Hartley, D.Sc. 634
A New Projector 634
Steaming in Continuous Vertical Retorts—Theory and Practice. By Norton H. Humphrys 635

CORRESPONDENCE.

Measuring the Make of Gas 637
Glasgow Corporation Chemical Works Department 637
British Benzole Mixture 637
High Price of Gas Oil 637

REGISTER OF PATENTS.

Mechanism for Doling-Out Predetermined Quantities of Liquid—A Secretary of the Board of Trade and Boys, C. V. 638
Improving the Working and Thermal Efficiency of Water-Gas Plants—Mellersh-Jackson, W. J. 638
Gas Generators—Patent Retorts, Ltd., and Davidson, T. M. 639
Applications for Patents 639

PARLIAMENTARY INTELLIGENCE.

House of Lords—
Progress of Bills 639
House of Commons—
Progress of Bills 639
Imports of Gas Mantles 639
Low-Temperature Carbonization . . . 639

LEGAL INTELLIGENCE.

A Question of Income-tax 639

MISCELLANEOUS NEWS.

Weathering the Storm at Bolton—A Successful Year 640
Barrow Corporation Gas Undertaking . . 640
Shanghai Gas Company, Ltd. 640
Trade Notes 640
Coal Trade Reports—
North-East Coast 641
Yorkshire and Lancashire 641
Midlands 641
Current Sales of Gas Products 642
Contracts Open 642
Stock Market Report 643

PARAGRAPHS.

National Playing Fields Appeal 622
Institution of Heating and Ventilating Engineers—National Gas Council—Flat Gas Pipes over a Subway 624
Institution of Mining Engineers 637
Malta and Mediterranean Gas Company, Ltd. 639
Relief of Rates at Coalville—Loss at Brighouse—Reduction at Kettle—Spenborough Council Reduces Price of Gas—Alleged Attempted Murder by Gas Poisoning—Paying Gas Accounts at the Bank—Celebration at Halifax—Gas Forges Ahead at Camborne—Cheaper Gas at Dewsbury—Reduction in Price at Carlisle—Gosport Company's Mortgage Bonds—Spalding Gas-Works Loan Refused—Gas Exhibition at Carmarthen—Satisfactory Results at Abertillery—Whessoe Foundry and Engineering Company, Ltd.—Low-Temperature Carbonization, Ltd.—Bideford Gas and Coke Company, Ltd. 642

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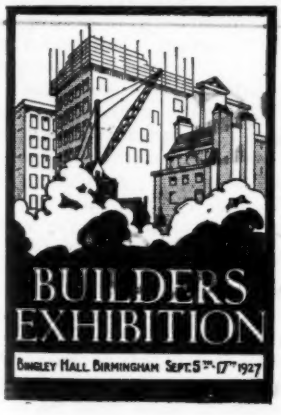

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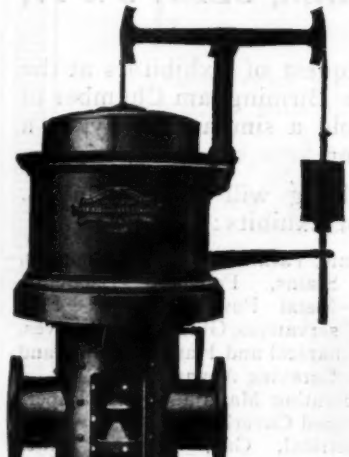

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